

RCRA RECORDS CENTER
 FACILITY Pat & Whitney - Mar St
 ID. NO. CTD99067208
 FILE LOC. 2-13
 OTHER RDMS #3963

The validated analytical results for the Appendix C constituents are presented in Table 4-3 and the validated analytical results for EP Toxicity analysis are presented in Table 4-4. Mass analysis results for sample CS-5 show elevated levels of chromium and nickel which can be attributed to the sampling tool (steel chisel), which contains these metals. In general, the Appendix C constituent levels are found to match the background levels and the EP Toxicity results are below levels presented in Table 1 of 40 CFR 261.24.

TABLE 4-3
CONCRETE CHIP SAMPLE ANALYSIS (ppm)

<u>Parameter</u>	<u>Target</u>	<u>SAMPLE NUMBERS</u>					
	<u>Level</u>	<u>CS-1</u>	<u>CS-2</u>	<u>CS-3</u>	<u>CS-4</u>	<u>CS-5</u>	<u>CS-6*</u>
<u>Metals</u>							
Arsenic	0.02	5.5	6.7	7.5	6.0	7.3	8.6
Barium	900	47	23	40	5.0	45	19
Cadmium	-	4.7	<1.3	<1.5	<1.3	<1.5	<1.5
Chromium	-	15	9.3	49	3.4	640	3.4
Chromium VI	90	<0.059	0.065	0.23	0.13	0.033	0.12
Copper	-	9.9	13	30	9.7	74	10
Lead	-	<2.1	<2.1	3.0	<2.1	9.8	4.4
Mercury	-	0.043	0.042	0.049	0.042	0.049	0.049
Nickel	300	19	8.9	54	<4.2	400	<4.9
Selenium	-	< .47	<0.45	<0.47	<0.51	<0.41	<0.49
Silver	50	<2.2	<2.2	<2.0	<2.3	3.4	<2.4
<u>Cyanide</u>							
Total	300	<0.48	<0.49	<0.48	<0.51	<0.49	<0.5
<u>Volatile Organics</u>							
Methylene Chloride	47	0.005	0.007	0.002	0.005	0.009	0.005
1,1 Dichloroethene	5.8	0.002	0.005	0.006	0.007	<0.0025	<0.0025
1,1,1 Trichloroethane	2000	0.022	0.096	0.13	0.031	<0.0025	0.018
Carbon Tetrachloride	2.7	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Trichloroethene	32	0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Tetrachloroethylene	69	0.28	0.46	0.53	0.31	0.017	0.3

* background

TABLE 4-4

CONCRETE CHIP SAMPLE EP TOXICITY ANALYSIS (ppm)

<u>Parameter</u>	EP Toxicity <u>Levels</u>	<u>SAMPLE NUMBERS</u>					
		<u>CS-1</u>	<u>CS-2</u>	<u>CS-3</u>	<u>CS-4</u>	<u>CS-5</u>	<u>CS-6*</u>
<u>Metals</u>							
Arsenic	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	100	0.30	0.16	0.26	0.22	0.31	0.21
Cadmium	1	<0.03	<0.03	0.04	<0.03	<0.03	<0.03
Chromium	5	0.06	0.06	0.07	0.06	<0.05	<0.05
Chromium VI	--	--	--	--	--	--	--
Copper	--	--	--	--	--	--	--
Lead	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Mercury	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	--	--	--	--	--	--	--
Selenium	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

* background

5.0 DISCUSSION

5.1 Closure Procedures

Except as noted in sub-Section 5.2 closure activities conformed to the approved closure plan. Per the closure plan, all incinerator train components were dismantled and disposed of at a RCRA permitted secure landfill. These system components are considered properly closed.

The concrete pit and the ceiling were decontaminated according to the approved closure plan. The concrete chip samples from the pit exhibited Appendix C constituent levels similar to the background levels and did not exhibit the hazardous waste characteristic for EP Toxicity. The wipe samples from the ceiling exhibited Appendix C constituent levels similar to the background samples. Therefore, these areas can be considered properly closed as they meet the closure criteria.

5.2 Deviations

Due to unforeseen circumstances, certain procedures that were not included in the approved closure plan were implemented to assure proper closure. These are discussed below.

- (a) The concrete pad for the combustion chamber was not large enough to allow for adequate background sampling. Therefore, the entire pad and the footing were excavated and disposed of along with other debris at the RCRA permitted secure landfill. The concrete pad is considered properly closed.
- (b) A blended oil feed line (WFL2) was found plugged. It was flushed with steam to clear the blockage. The rinsate generated was treated as hazardous waste.

- (c) It was stated in the approved closure plan that if waste feed line WFL3 was not decontaminated after the initial cleaning, the same steps will be repeated. Initial rinsate sampling resulted in no detectable cyanide; however, several organic constituents were detected above the target clean levels. As a result, the decontamination procedure was modified by substituting a Citrikleen solution for the sodium hydroxide solution during the second round of line flushing. The validated analytical results from the final round of sampling indicated that all Appendix C constituent levels were below the target level. The cyanide feed line is considered closed properly.
- (d) Decontamination of all three waste feed lines was deemed incomplete following the initial round of line flushing. Decontamination procedure during line flushing were modified by using steam and Citrikleen solution since organic constituents were targeted for removal.

5.3 Incomplete Items

The validated analytical results from the final rinsate analyses (WFL-1A, WFL-2A and WFL-4A) from the two blended oil feed lines indicated that the levels of organic constituents were above the closure criteria. The closure of these two lines is deemed incomplete.

5.4 Specific Submittals

Specific submittals that constitute a complete closure certification for the incinerator train and the waste feed lines are identified and discussed below.

1. As-built Drawings:

Since all the equipment components that were closed have been removed and disposed of off-site and there was no new construction associated with this closure, as-built drawings are deemed unnecessary and are not included. The drawings and the photographs of the facility prior to closure are included in Appendices A and B, respectively.

2. Soil Verification Test Results:

Soil verification tests were not required by the approved closure plan.

3. Appendix IX Test Results:

Appendix IX testing was not required by the approved closure plan

4. Photographic Records of Closure

These are included in Appendix F.

5. Summary of Daily Logs

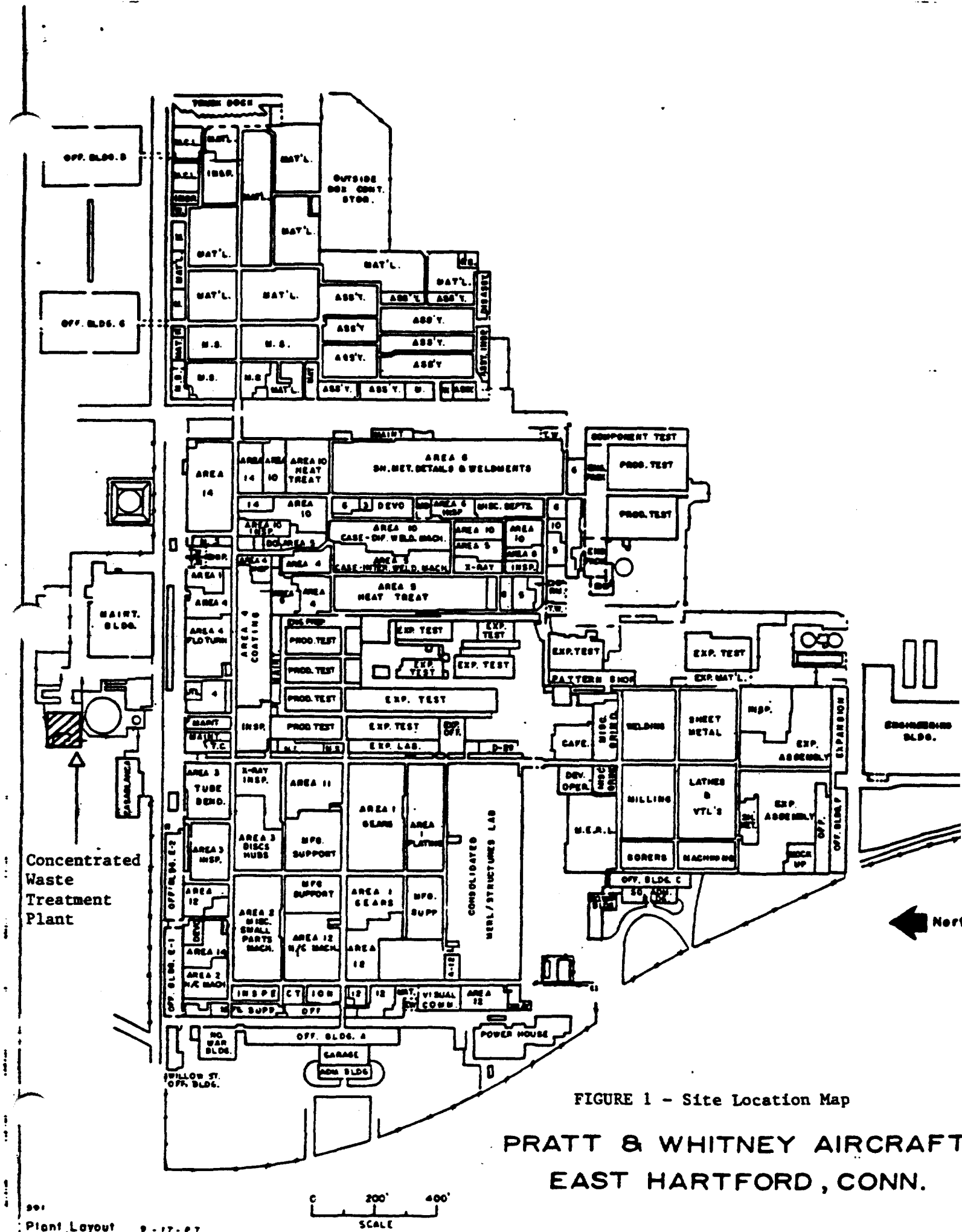
These are included in Appendix E.

6. List of Minor Departures:

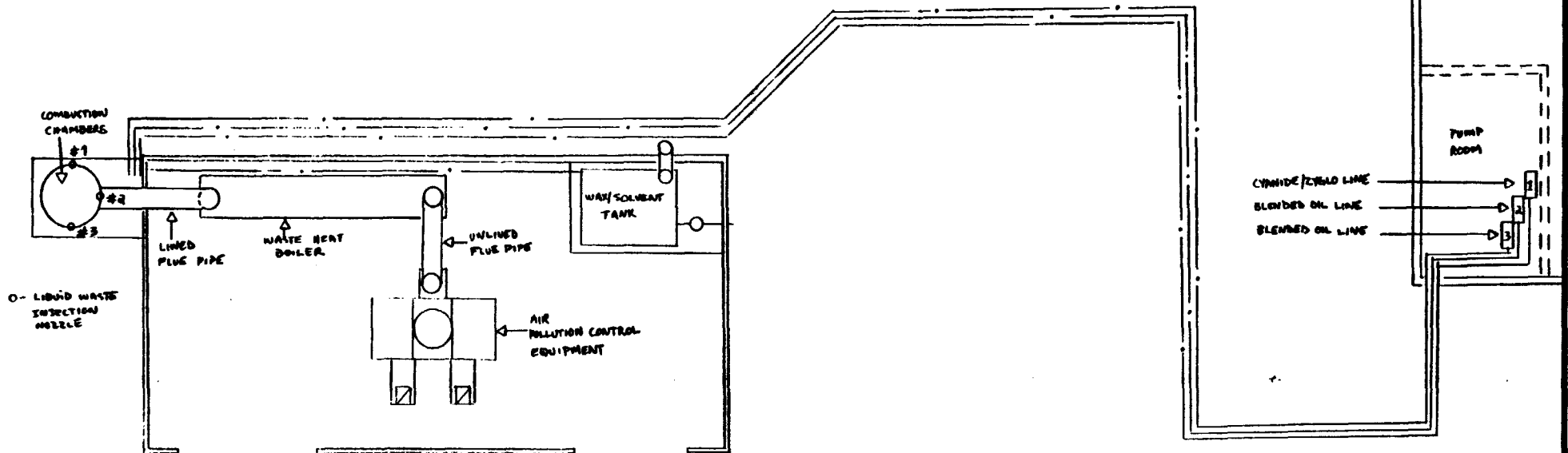
These are discussed in sub-Section 5.2.

APPENDIX A

Drawings of the Incineration System



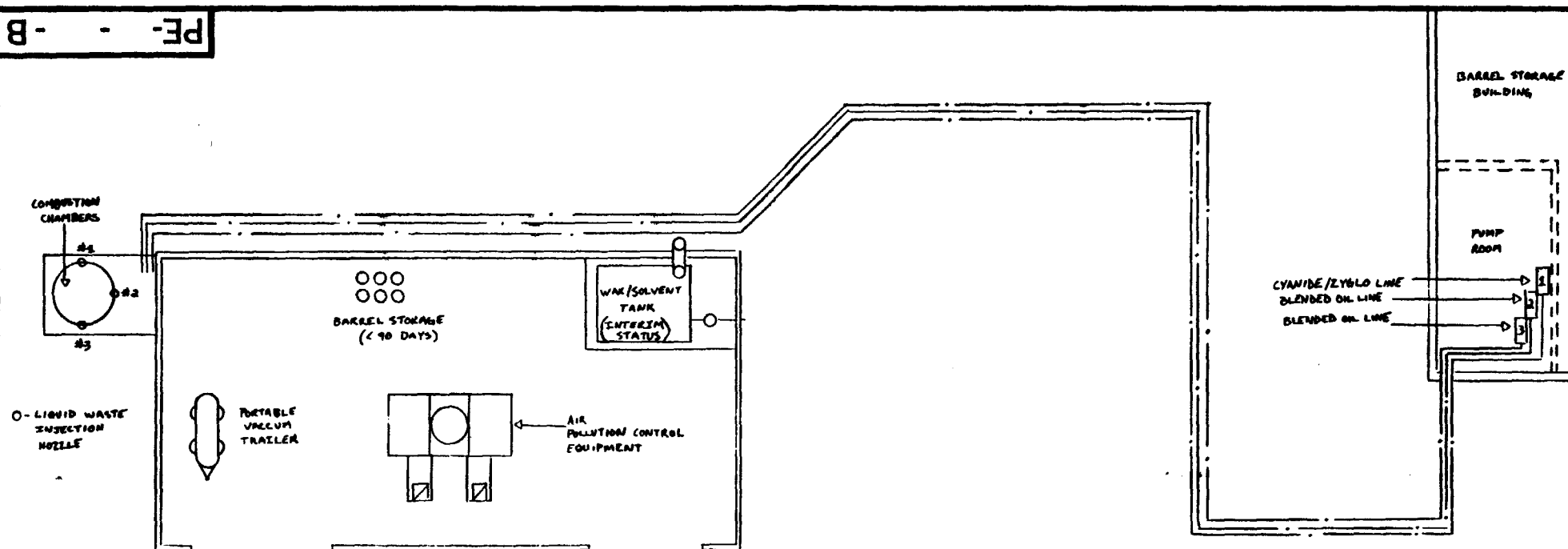
PE - - B



REV.	DESCRIPTION OF REVISION	DATE	DR. BY	APPR.
FIGURE 2		LOCATION CWTP		
INCINERATOR SKETCH LAYOUT - PRE 1988		SCALE NOT TO SCALE		
		DRAWN BY SLS	DATE 6/22/84	
		CRD. BY	DATE	
		APP. BY	DATE	
		JOB ORDER NO.		
		DRAWING NO.		
PRATT & WHITNEY AIRCRAFT GROUP		UNITED TECHNOLOGIES		
Manufacturing Division				
PLANT ENGINEERING DEPARTMENT				
EAST HARTFORD, CONNECTICUT 06108, U.S.A.				
PE - - B		SHEET NO. 1 OF 1		



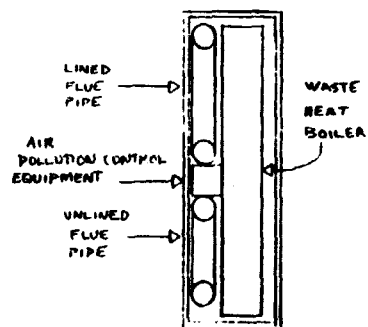
PE - - - B



0- LIQUID WASTE INJECTION NOZZLE

PORTABLE VACUUM TRAILER

AIR POLLUTION CONTROL EQUIPMENT



REV.	DESCRIPTION OF REVISION	DATE	DR. BY	APP.
FIGURE 3		LOCATION		
INCINERATOR SKETCH LAYOUT AS OF JUNE 22, 1989		CWTP		
		SCALE		
		NOT TO SCALE		
		DRAWN BY	DATE	
		SLS	6/22/89	
		CRD. BY	DATE	
		APP. BY	DATE	
		JOB ORDER NO.		
		DRAWING NO.		
		PE - - - B		
		SHEET NO.	NO. OF SHEETS	

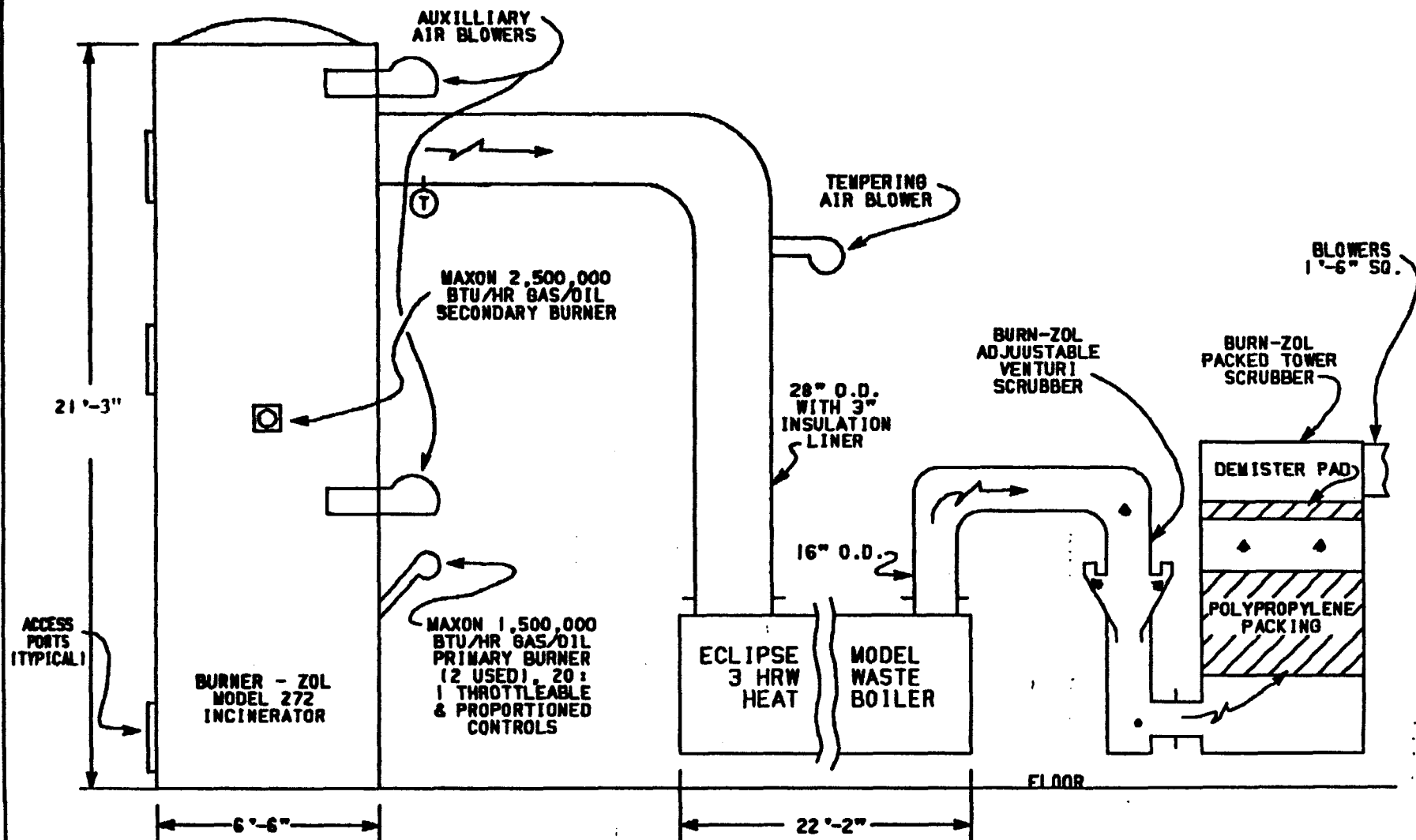
PRATT & WHITNEY  **UNITED TECHNOLOGIES**

Manufacturing Division
PLANT ENGINEERING DEPARTMENT
EAST HARTFORD, CONNECTICUT 06108, U.S.A.

HAZARDOUS WASTE INCINERATION SYSTEM

INSTALLED AT

PRATT & WHITNEY, EAST HARTFORD, CONN.



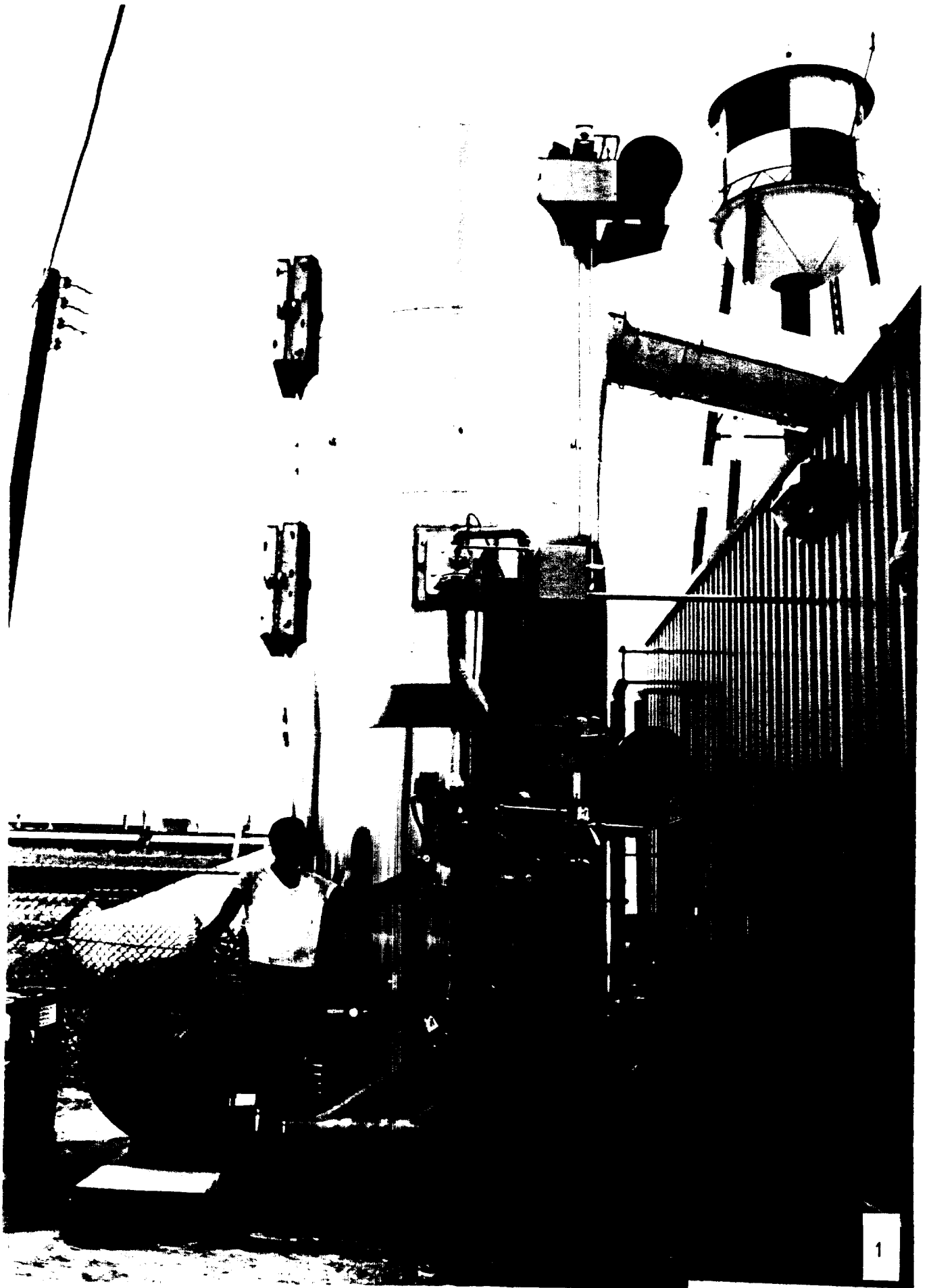
NOTE: A 1,200 ACFM COMBUSTION AIR BLOWER FEEDS THE 3 INCINERATOR BURNERS

APPENDIX B

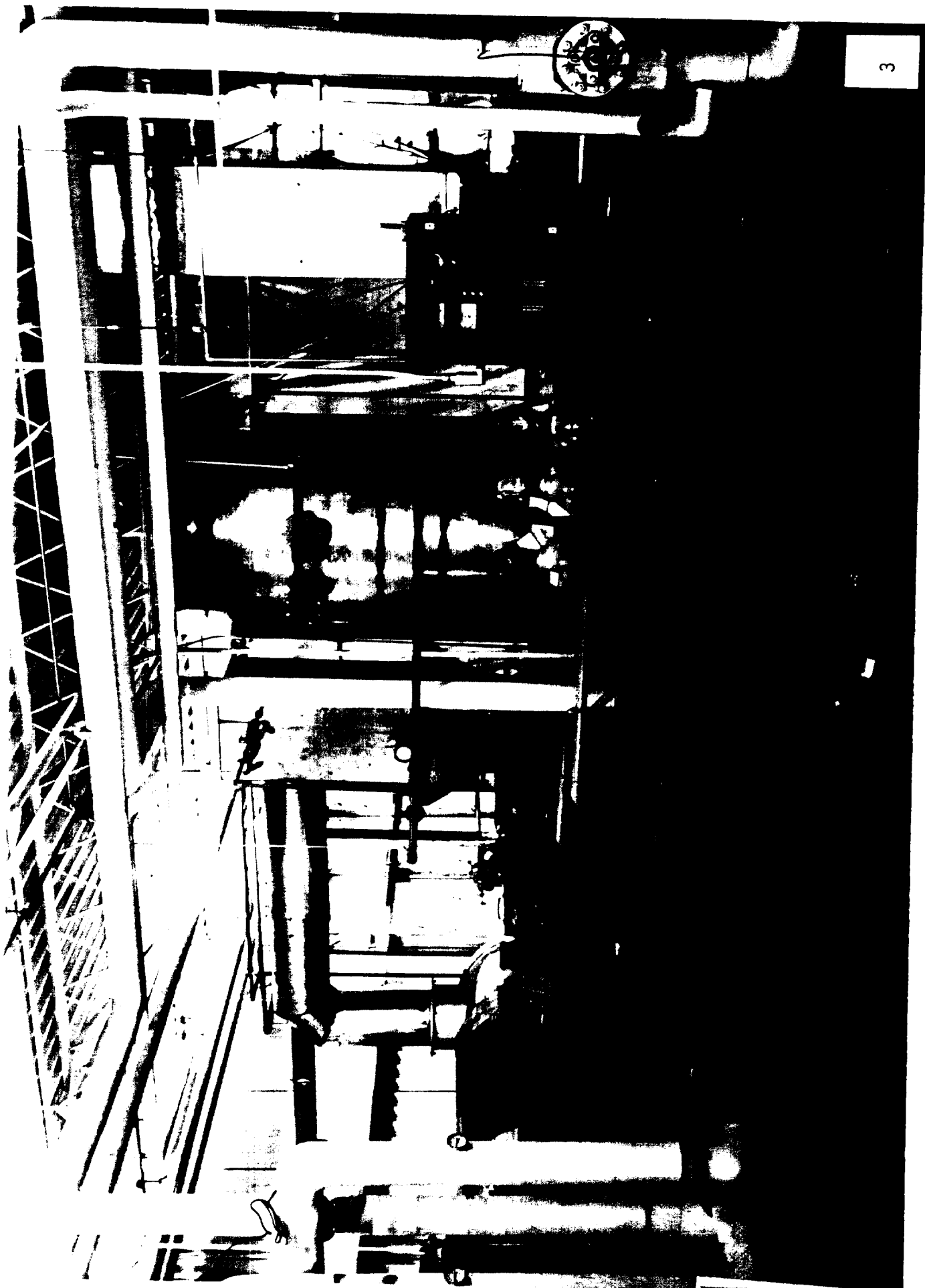
Photographs of the Incineration System

LIST OF PHOTOGRAPHS OF THE INCINERATION SYSTEM AS INSTALLED

<u>NUMBER</u>	<u>DESCRIPTION</u>
1	The combustion chamber located outside the building (81C2185-015)
2	The waste heat boiler located inside the building (81C2185-014)
3	The air pollution control system located in the pit inside the building (82C5872-001)







Originals in color.

APPENDIX C

List of Constituents Requiring Analysis

HAZARDOUS WASTE INCINERATOR CLOSURE PLAN

11.0 TESTING AND DETERMINATION PROCEDURES

A specific analytical parameter list has been developed for all ash/residue, waste feed line rinsate and concrete chip samples collected during incinerator train closure activities. As presented in Table 2 this list is representative of all listed hazardous waste constituents potentially present in the cyanide solution and wax/solvent mixture, the only waste streams burned in the incinerator. In addition, the characteristic hazardous waste parameters of corrosivity and extraction procedure toxicity have been deemed applicable and are therefore included.

TABLE 2

LISTED HAZARDOUS WASTE CONSTITUENT PARAMETERS AND ANALYTICAL METHODS

<u>Parameter</u>	<u>Aqueous</u> (Rinsate)	<u>Solid-Mass Analysis</u> (Concrete chip/ ash/residue)
<u>Metals</u>		
Arsenic	3010/7060	3050/7060
Barium	3010/6010	3050/6010
Cadmium	3010/6010	3050/6010
Chromium (Total)	3010/6010	3050/6010
Chromium VI	-- /7196	-- /7196
Copper	3010/6010	3050/6010
Lead	3010/6010	3050/6010
Mercury	3010/7470	3050/7471
Nickel	3010/6010	3050/6010
Selenium	3010/7740	3050/7740
Silver	3010/6010	3050/6010
<u>Cyanide</u>	-- /9010	-- /9010
<u>Volatile Organic Compounds</u>		
Carbon Tetrachloride	5030/8010	5030/8010
1,1-Dichloroethylene	5030/8010	5030/8010

HAZARDOUS WASTE INCINERATOR CLOSURE PLAN

Methylene Chloride	5030/8010	5030/8010
Tetrachloroethylene	5030/8010	5030/8010
1,1,1-Trichloroethane	5030/8010	5030/8010
Trichloroethylene	5030/8010	5030/8010

* 5030/8010 - preparation method / analytical method

The analytical methods presented above have been selected from the third edition of EPA Publication SW-846 - Test Methods for Evaluating Solid Waste. The designated laboratory will follow all applicable internal QA/QC procedures outlined in SW-846.

Upon receipt of the analytical data, an initial evaluation of the results will be performed through data validation. Data validation includes a review of field QA/QC procedures (i.e. trip blanks, field blanks) and laboratory QA/QC procedures (i.e. holding times, blind duplicate analysis, surrogate recoveries). Data points that are not adequately supported by the QA/QC procedures will be referred to the sampling team and/or the laboratory for appropriate corrective actions.

APPENDIX D
Closure Criteria

HAZARDOUS WASTE INCINERATOR CLOSURE PLAN

TABLE 1

TARGET CLEANUP LEVELS WASTE FEED LINE RINSATE SAMPLING

<u>CONSTITUENT</u>	<u>CONCENTRATION (mg/l)</u>
Arsenic ¹	0.05
Barium ¹	1.0
Cadmium ¹	0.01
Chromium ¹	0.05
Copper ²	1.0
Lead ¹	0.05
Mercury ¹	0.002
Selenium ¹	0.01
Silver ¹	0.05
Cyanide ³	0.2
Carbon Tetrachloride ¹	0.005
1,1-Dichloroethylene ¹	0.007
Methylene Chloride ⁴	0.025
Tetrachloroethylene ⁴	0.02
1,1,1-Trichloroethane ¹	0.20
Trichloroethylene ¹	0.005

1. EPA Primary Drinking Water Standard (MCL)
2. EPA Secondary Drinking Water Standard (SMCL)
3. Recommended Contaminant Level (RMCL)
4. Connecticut Department of Health Services - Action Level

HAZARDOUS WASTE INCINERATOR CLOSURE PLAN

TABLE 2

HEALTH BASED RISK LEVELS CONCRETE CHIP SAMPLING

<u>CONSTITUENT</u>	<u>CONCENTRATION (mg/kg)</u>
Arsenic	0.02
Barium	900
Cadmium	*
Chromium vi	90
Copper	*
Lead	*
Mercury	*
Nickel	300
Selenium	*
Silver	50
Cyanide	300
Carbon Tetrachloride	2.7
1,1-Dichloroethylene	5.8
Methylene Chloride	47
Tetrachloroethylene	69
1,1,1-Trichloroethane	2000
Trichloroethylene	32

Risk levels obtained from RCRA Facility Investigation (RFI)
Guidance Document (EPA Publication SW-87-001)

* No risk levels identified

APPENDIX E
Copies of Daily Logs

**PRATT & WHITNEY
BURN-ZOL HAZARDOUS WASTE INCINERATOR
DAILY FIELD LOG
IT PROJECT NUMBER 515153**

Monday 11/13/89

A 5-man crew mobilized from Pittsburgh, Pa., to E. Hartford, Connecticut. After arriving in E. Hartford, the crew contacted Mr. Scott Singer, went to the plant for identification processing, and walked the job site area to discuss objectives and scheduling.

Tuesday 11/14/99

All piping outside of the Burn-Zol unit was dismantled by means of pipe wrenches or cold cutting with reciprocating saw.

Two crew members began removing the outer shell and fiberglass insulation from the large heat exchanger located inside the incinerator building.

All dismantled piping was laid on a double layer of 6 mil polyethylene plastic and covered until a roll off box was delivered.

Wednesday 11/15/89

A crew member continued to dismantle the large heat exchanger while the other two crew members plumbed the waste feed lines to enable us to flush the lines.

Jack Hill from ITFAS arrived on-site to take samples after the waste feed lines had been flushed and rinsed.

At approximately 1330 hours, we began flushing the waste feed lines.

The Blend Oil Line (WFL1) was flushed using a 3-step method:

Step 1 - Approximately 25 gallons of plant tap water was flushed through the line.

Step 2 - Approximately 25 gallons of Citrikleen solution (30%) was pumped through the line.

Step 3 - Approximately 25 gallons of plant tap water was flushed through the line.

The Cyanide Feed Line (WFL3) was flushed using the same 3-step method except that a Sodium Hydroxide solution (25%) was used instead of the Citrikleen solution.

The Zyglo Feed Line (WFL2) was blocked somewhere in the line and could not be flushed. A decision was made by Scott Singer to connect steam to the line to loosen the material.

The flushing operation began outside of the incinerator building. Water and solutions were pumped from this point to the pump room under the drum storage building where the affluent was contained in 55-gallon drums.

Plant tap water was sampled for influent background analysis before the flushing process began.

Affluent samples were taken at the end of the third rinse.

Thursday 11/16/89

Refractory brick that was laying inside the Burn-Zol unit was removed by hand.

Refractory from the large heat exchanger was removed by electric chipping hammer and staged on poly inside the incinerator building.

Materials were purchased and construction of the poly barrier began.

The Burn-Zol unit was to be lowered to the ground today, but due to high winds, this operation was postponed until Friday 11/17/89.

Friday 11/17/89

The crew prepared the Burn-Zol unit for lowering it to the ground. Refractory brick that was blocking the top opening was knocked out. A cable was rigged through the top openings.

At approximately 1130 hours, the Burn-Zol unit was lowered to the ground and staged on poly.

The large heat exchanger was moved outside the incinerator building and crew member began torch cutting it.

Saturday 11/18/89

One crew member continued dismantling the large heat exchanger.

Three crew members removing refractory from Burn-Zol unit.

All refractory and tubing from heat exchanger were placed in roll off boxes and covered overnight.

Large pieces of the heat exchanger shell were staged on poly and covered overnight.

Monday 11/20/89

Crew continued to dismantle large heat exchanger and remove refractory from the Burn-Zol unit.

Tuesday 11/21/89

Continued removing refractory from the Burn-Zol unit and started cutting the inner and outer shells.

A steam line was connected to the Zyglo Feed Line (WFL2). Steam was applied to the line for approximately six (6) hours. After approximately 25 gallons of product was retrieved, the line was flushed by the 3-step method by using the Citrikleen solution (30%). Effluent samples of the final rinse were taken by Mr. Scott Singer of PWA.

By the end of the shift, the Burn-Zol unit had been completely dismantled.

Wednesday 11/22/89

The large heat exchanger has been completely dismantled.

The small heat exchanger was moved outside and dismantled.

Construction of the poly barrier was completed.

The incinerator building was cleaned out in preparation of inside work.

The crew returned home for Thanksgiving and will return on-site on Monday, 11/29/89.

Monday 11/27/89

An entrance was constructed through the poly barrier.

The crew began dismantling the large scrubber unit and associated piping.

Tuesday 11/28/89

Waste feed lines in the pump room were removed.

The large scrubber was removed and lowered to the ground. The shell was cut in half, the Tellerette packing was removed, and both halves were staged under poly with the Burn-Zol pieces.

One of the plastic tanks in the pit area was completely dismantled. The second plastic tank was 90 percent dismantled.

Wednesday 11/29/89

All contents of the pit area were dismantled and removed.

Crew began dismantling the air pollution control equipment.

The concrete pad that the Burn-Zol unit was placed on was broken up by means of a hydraulic hammer mounted on a backhoe.

Thursday 11/30/89

Continued dismantling equipment and piping inside the incinerator building.

The exhaust stacks that extended through the roof of the incinerator building were cut down, cut into pieces, and lowered to the ground. The pieces were staged under poly along with the Burn-Zol and heat exchanger pieces.

All pieces of the concrete pad were excavated and placed into roll off boxes. A footer was discovered under the concrete pad. Mr. Scott Singer requested that it also be excavated and removed.

The footer was broken into pieces, excavated, and placed outside the work area. The pieces will be taken off-site by the construction crew that was excavating for foundation work.

Friday 12/1/89

Continued to dismantle equipment and piping inside the incinerator building.

Sample results from waste feed line affluents indicated high concentration of organics. It was decided by Mr. Scott Singer that the three lines be steamed for a number of hours and then filled with Citrikleen solution.

The Blend Oil Feed Line (WFL1) was flushed with steam for 7.5 hours and filled with Citrikleen.

Two roll off boxes were weighed, manifested, and taken off-site for transportation to the CWM Emille, Alabama facility.

Dismantlement of equipment and associated piping inside the incinerator building is 100 percent complete.

A flatbed tractor-trailer arrived on-site to transport the large pieces of steel shells.

Saturday 12/2/89

Seventy percent of all electrical control panels and associated conduit were dismantled and staged on pallets outside the incinerator building. PWA will dispose of these components.

All pieces of the Burn-Zol heat exchanger and scrubber units were loaded onto the flatbed trailer. Side boards were put on and the trailer was tarpped and secured.

Flushed the Zyglo Feed Line (WFL2) with steam for five hours.

Monday 12/4/89

Continued dismantling and removing electrical components inside the incinerator building.

Flushed WFL2 with steam for one more hour and then filled it with Citrikleen.

Flushed the Cyanide Feed Line (WFL3) with steam for seven hours.

Dismantlement and removal of equipment inside the incinerator building is 100 percent complete.

The flatbed trailer was weighed, manifested, and transported off-site for disposal.

Tuesday 12/5/89

Filled WFL3 with Citrikleen.

Constructed a decon pad and deconed all equipment and tools by means of steam cleaning.

The floor of the pit area was steam cleaned. The rinsate was pumped out and taken by CWTP personnel.

Wednesday 12/6/89

The ceiling inside the incinerator building was wiped down by means of spraying the ceiling with a Citrikleen solution and wiping with clean lint free cloths.

Thursday 12/7/89

The poly barrier was dismantled and removed from the building.

Jack Hill from ITFAS arrived on-site to take samples.

All three waste feed lines were flushed again using the 3-step method. Effluent samples were taken.

Wipe samples were taken from four areas of the ceiling in the incinerator building. Two background wipe samples were taken over the wax solvent tank area.

Concrete chip samples were taken from the pit area.

Friday 12/8/89

The crew inventoried and packed up all tools and equipment in preparation for demobilization.

The waste feed lines outside the incinerator building were capped.

The last two roll off boxes were weighed, manifested, and transported off-site for disposal.



INTERNATIONAL
TECHNOLOGY
CORPORATION

Crew: T. Dormer
P. Andreas
F. Paul
K. Hohman
J. Pail

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 11/13/89

Job Number 515135

Day Mon

Weather Conditions Sunny, Mild

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.):

Mobilized to Hartford Ct. - Met with Scott Singer, completed
Identification process. Walked the jobsite area and discussed
Scheduling

Schedule and Performance Status:

Additional-Extra Unanticipated Cost Factors:

Orders, Directives, Notices and Protests:

Meetings:

Visitors:

Tom Dormer



Crew: T. Dornier
P. Andreas
F. Paul
K. Hohman
J. Paul

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 11/14/89

Job Number 515153

Day Tue

Weather Conditions Sunny, Warm

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.):

0700 - Tailgate Safety Meeting

0715 - Unloaded Trailer

0730 - Began dismantling all piping from the Burn-201 unit. Piping was removed with pipe wrenches or by cold cutting with sawzalls.

30 min. delay because of an air line still live. P&W's maintenance men worked on shutting it off. All piping was laid on plastic & covered.

1330 - All piping removed from Burn-201. Began removing sheeting & insulation from large heat exchanger inside the building - Continued til end of shift

1400 - Began disconnecting piping in pump room

Schedule and Performance Status: All piping removed from Burn-201 unit - Flush lines tomorrow. Crane scheduled for Thurs.

Additional-Extra Unanticipated Cost Factors:

Orders, Directives, Notices and Protests:

Meetings: Meeting with Scott Singer about Time Sheet, Site Reports, Scheduling

Visitors:

Front End Loader Delivered

T. Dornier



Crew
T. Dorrer
P. Anderson
J. Hill
J. Hill

DAILY SITE REPORT

Job Name Pratt Whitney

Date 11/15/99

Job Number 515153

Day Wed

Weather Conditions Rain in AM 60°

Site Conditions Wet

Daily Work Description and Comments (tests, changes, claims, etc.): 0700- Tailgate Safety Meeting

0715- 2 men removing refractory insulation from ends of heat exchanger (boiler)

2 men doing plumbing necessary for line flushing

1000- Jack Hill from IT on site

1100- All pumps & hoses set up - ready for flushing lines

- Waiting on Larry Lucas for radios -

1330- Started flushing lines - Flushed 1 waste oil line and the cyanide

line. Jack Hill took samples after the third rinse. The 2nd waste oil line is
blocked.

1630- Plumbed an airline to the blocked oil line but it would not clear. Will
try steam when its available

Schedule and Performance Status: The blocked oil line will be flushed when
steam is available

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: Jack Hill- IT FAS, Edison NJ

2nd Man lift delivered

Tom Dorrer



Crew: T Dornier
P Dornier
F Paul
K Huhmann
J Paul

DAILY SITE REPORT

Job Name Pat + Whitney

Date 11/16/89

Job Number 55153

Day Thur

Weather Conditions Heavy rain, high winds

Site Conditions Wet

Daily Work Description and Comments (tests, changes, claims, etc.): 0700: Tailgate Safety Meeting

0715 - Started removing refractory from inside Burn-201 incinerator.

- Loaded material into bucket of front loader

- Loaded refractory from heat exchanger into bucket of front loader

- Covered front loader bucket with poly

- Cleaned up area around heat exchanger

1300 - Purchased lumber and began constructing poly barrier. Frame work finished by end of shift

Schedule and Performance Status: Will not attempt to lower Burn-201 unit because of weather condition

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: Meeting with Scott Singer. Discussed flushing of blocked oil line. Possibility of a closed valve near the storage area. Steam is now available if needed

Visitors: _____

Tom Dornier

1 Roll Off Box delivered



Crew: T. Dormer
P. Andreas
F. Paul
K. Hohman
J. Pail

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 11/17/89

Job Number 515153

Day Fri

Weather Conditions Clear Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700- Tailgate Safety Meeting
0715 - Began preparing to lower Burn-201 unit to ground. Knocked out refractory
brick that was blocking the top opening. Moved Roll Off box to the front of the
incinerator bldg.
0900- Applied for Burning Permit. Dragged the heat exchanger outside & began cutting it
1000- Crane operator from PWA arrived. Rigged a cable thru the top port of the
Burn-201 unit & hooked on to the crane.
1130 - Burn-201 unit lowered to the ground then staged outside ~~in~~ the incinerator
bldg. on poly
1400- Began cutting the outer shell of the Burn-201 unit
1700- Top half of heat exchanger removed. All pieces covered overnight

Schedule and Performance Status: _____

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Tom Dormer



Crew

T. Dormer

P. Andreas

F. Paul

K. Hohman

J. Paul

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 11/18/89

Job Number 515153

Day Sat

Weather Conditions Cloudy, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700-Tailgate Safety Meeting

0715- 1 man cutting heat exchanger

3 men removing refractory from Burn 2d unit

Continued these operations til end of shift at 1530

All pieces covered with poly at end of shift

Schedule and Performance Status: _____

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

John Dormer



Equipment: 1 - pick up
1 - 3yd Loader
2 - Man Lifts
2 - Demo Saws
2 - Demo Hammers
1 - Roll off
1 - Equip. Trailer 1 - Roll off Box

Crew: T. Dornier
P. Andreas
F. Paul
K. Hohman
J. Pail

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 11/20/89

Job Number 515153

Day Mon

Weather Conditions Cloudy, Cool, Rain in AM

Site Conditions Wet

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting
0715 - Continued dismantling heat exchanger and removing refractory
from Burn-Zol unit for entire day.

1730 - End of Shift

Schedule and Performance Status: 2nd Roll Off being delivered tomorrow.
Will attempt to flush Zyclo line with steam tomorrow.

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

John Dornier



Equipment: 1- Pick up
1- Equip. trailer
1- 3 yd loader
1- man lift
1- Sissors lift
2- Demo Saws
2- Demo Hammers
2- Roll off boxes

Crew: T. Dormer
P. Andreas
F. Paul
K. Hohman
J. Paul

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 11/21/89

Job Number 515153

Day Tue

Weather Conditions Cold, Windy

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - 1 man cutting shell of Burn 2d unit

1 man removing refractory - 2 men hooking up steam line to 2ygl line

0800 - Turned on steam to 2ygl line - very little coming out other end

0830 - All refractory removed from ~~2ygl line~~ Burn 2d unit

1100 - Retrieved approx 25 Gal of Green liquid from 2ygl line. Shut off steam.

Re-plumbing to run water thru line.

1230 - 2nd Roll Off Box delivered. Weighed the full one - 14,000 lb over - will have to take off

1400 - ~~2ygl~~ Flushed 2ygl line with water, Citricken, water. Clear water coming out.

1445 - Scott Singer takes samples of final flush water

1730 - End of Shift

Schedule and Performance Status: Burn 2d dismantling completed. Large heat exchanger dismantling 90% complete

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Exchanged Manlift for 1 Sissors lift



Equipment: 1- Pickup
1- Equip Trailer
1- Jyrt loader
1- Man lift
1- Sissor lift
2- Demo Saws
2- Demo Hammers
2- Roll off boxes

Crew: T. Dorner
P. Andrews
K. Hohman
J. Pail
J. Sardello

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 11/22/89

Job Number 515153

Day Wed

Weather Conditions Clear, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Continued dismantling large heat exchanger

0730 - Began construction of polyethylene wall

0900 - Large heat exchanger completely dismantled

0930 - placed small heat exchanger outside + began dismantling

1200 - small heat exchanger completely dismantled - placed in roll off

1300 - Poly wall completed

1330 - Cleaned out incinerator room of all debris

1400 - Placed all equipment inside incinerator room

- Covered roll off boxes & Burn 201 pieces

1430 - End of Shift

Schedule and Performance Status: Flat bed scheduled for Tue (11/28/89) for

Transporting pieces of Burn 201 unit

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Tom Dorner



INTERNATIONAL
TECHNOLOGY
CORPORATION

Equipment: 1- Pick up
1- Equip trailer
1- 3yd loader
1- Man lift
1- Scissor Lift
2- Dem Saw
2- Roll Off Boxes

Crew: T. Dormer
P. Andreas
K. Hohman
T. Paul
T. Sardello

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 11/27/89

Job Number 515153

Day Mon

Weather Conditions Clear, Cool

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 1200: Arrived on Site

1300 - Constructed a doorway thru the poly wall.

1330 - Began dismantling scrubber unit

1630 - Began removing pipe inside pump room

1730 - End of Shift

Schedule and Performance Status: Sea Land cannot supply Roll Off boxes when needed.
Contacted Freehold Cartage Inc. of Freehold N.J. . They will deliver
a roll off box tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

T. Dormer



Equipment: 1- Pick up
1- Equip trailer
1- 2yd loader
1- Man lift
1- Sissor Lift
2- Demo sand
3- Roll off Boxes

Crew: T. Dormer
P. Andreas
K. Hohman
T. Paul
J. Sardello

DAILY SITE REPORT

Job Name Dratt + Whitney

Date 11/28/89

Job Number 515153

Day Tue

Weather Conditions Cool, Rain in AM

Site Conditions Wet

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Two men Continue removing pipes from pump room

- Two men continue dismantling scrubber

1100 - All piping + conduit attached to scrubber removed. Torch cut part of railing around pit. Extracted scrubber from pit area by forklift.

1300 - Load scrubber down on the floor + began saw cutting in half

- 2 men begin cleaning out pit area

1530 - Scrubber unit is cut in half - Top half staged outside. Began removing Tellerette packing + placing in roll off.

1700 - Scrubber unit completely dismantled, 1 Plastic tank in pit completely dismantled 2nd tank 90% dismantled 1730 - End of Shift

Schedule and Performance Status: Flatbed trailer for Burn 201 pieces didnt arrive

Additional-Extra Unanticipated Cost Factors: Hit overhead heater with forklift when moving scrubber unit - steam leaking. Shut off steam

Orders, Directives, Notices and Protests:

Meetings:

Visitors:

1100 - Roll off box from Freehold Cartage Inc. delivered



Equipment: 1- Pick up
1- Equip Trailer
1- 2yd loader
1- manlift
1- scissor lift
2- Deere saws
3- Roll off Bins
1- Cat 416 Backhoe/Loader

Crew: T. Danner
P. Andreas
K. Nohman
J. Paul
J. Sardella

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 11/29/89

Job Number 515153

Day Wed

Weather Conditions Clear, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Continued dismantling contents of pit: Plastic tank, motors, steel frame, etc.

1100 - Pit area completely cleaned out. Man from CWTP pumped out water from pit

1300 - Began removing air pollution control equipment

1400 - Backhoe with hammer attachment delivered; Began breaking up BurnZol pad

1600 - BurnZol pad broken up, will load into roll offs on Thurs or Fri

1630 - Transferred some debris from Roll off #1 to Roll off #2

1730 - End of shift

Schedule and Performance Status: Dismantling of equipment inside bldg. 75% Complete. 4th Roll Off Bin delivered tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: Meeting with Scott Singer - Sample results from Blend Oil Feed line indicates high concentration of Organics. Will Flush with steam

Visitors: _____

T. Danner



Equipment:
1- P. 1 up
1- Equip. trailer
1- Angel loader
1- Cat 416 backhoe
1- Man lift
1- Scissor lift
2- Demo Saws
4- Roll off Boxes

Crew: T. Dormer
P. Anderson
K. Hohman
J. Paul
J. Sardella

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 11/30/89

Job Number 515153

Day Thurs.

Weather Conditions Cloudy, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Continue dismantling equipment inside bldg.

1000 - Bucket for backhoe delivered - mounting onto backhoe

1045 - 2 men on roof of Bldg cutting down exhaust stacks

1045 - 4th Roll Off Box delivered

1330 - Both exhaust stacks cut into pieces and lowered from roof

1400 - All concrete from Burn 201 pad removed. Discovered footer around the perimeter of the pad. Will excavate and remove as per Scott Singer

1600 - Excavated around footer under Burn 201 pad. Footer is 1 piece - will have to demolish with hydraulic hammer

1730 - End of Shift - Footer demolished + excavated; backfilled hole

Schedule and Performance Status: Removing equipment from inside of bldg. 90% Complete. Cannot plumb steam into broken pipes in pump room - will attempt this tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: Bill Ladie, Skip Brennan - IT Corp.

James Dormer



Equipment

- 1- Pickup
- 1- Equip Trailer
- 1- 2 yd loader
- 1- Cat 416 Backhoe/Loader
- 1- Man Lift
- 1- Scissor Lift
- 2- Demo Saws
- 4- Roll Off Boxes

Crew

- T. Dornier
- P. Andreas
- K. Hohamann
- T. Paul
- J. Sardello

DAILY SITE REPORT

Job Name Pratt+Whitney

Date 12/1/89

Job Number 515153

Day Fri

Weather Conditions Clear, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700- Tailgate Safety Meeting

0705- Continued dismantling equipment inside bldg.

- Discovered that there is still power in one of the control panels to be removed. Contacted Rich - he'll get an electrician to lock it out.

0900- Truck from Sea Land arrived to transport 1 roll off box to landfill

1300- Plumbing product feed lines to flush with steam

1330- Truck from Sea Land arrived for 2nd Roll Off. Both Roll Offs weighed, manifested and transported off site

1400-1700- Flushed WFL1 with steam

1600- Flat bed truck arrives

1730- End of Shift

Schedule and Performance Status: Dismantling of equipment inside bldg 100% complete. will dismantle all electrical components tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: Cut and remove copper water line feeding the wax solvent tank - as per Rich.

Meetings: _____

Visitors: _____

T. Dornier



Equipment: 1- Pickup
1- Equip. Trailer
1- 2 yd loader
1- Cat 416 Backhoe/Loader
1- Man Lift
1- Sissor Lift
2- Demo Saws
2- Roll Off Boxes

Crew T. Danner
P. Andrews
K. Hohman
J. Paul
J. Sardello

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 12/2/89

Job Number 575153

Day Sat.

Weather Conditions Cloudy, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700- Tailgate Safety Meeting

0715- 2 men inside bldg removing electrical components

- 3 men Loading Flat bed with Burn 2d pieces

0800- Continued flushing WFL 1 with Steam until 1030

1030- Started Flushing WFL 2 with steam

1300- All pieces of Burn 2d unit + scrubber unit loaded onto Flat bed.

1330- Piece of conduit loaded into Non Hazardous roll off box.

1400- 2 large pieces of Burn 2d Exhaust Flute were broken up and placed into roll off box

1530- End of Shift

Schedule and Performance Status: Removal of electrical components 70% complete. Manlift not working - need mechanic in on Monday

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

T. Danner



Equipment: 1- Pick up
1- Equip Trailer
1- 2yd Loader
1- Cat 416 Backhoe/loader
1- Man Lift
1- Sissor Lift *1. Fork Lift
2 Dem Saw
2 Roll off Boxes

Crew: T. Dorm
P. Andrea
K. Hohman
J. Paul
J. Sardelli

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 12/4/89

Job Number 515153

Day Mon

Weather Conditions Clear Cold

Site Conditions Dry, Icy

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Continued removing electrical components

0730 - Continued Flushing WFL2 because the effluent is still greenish in color and has an odor to it.

0830 - Effluent From WFL2 appears cleaner & free from odor. Switched Steam over to WFL3

1130 - Removal of Electrical Components 100% Complete

1400 - 1500 - Filled WFL1 & 2 with Citrikleen

1530 - Shut off Steam to WFL3

1530 - 1730 - Removed extra piping & cleaned inside of bldg

1730 - End of Shift

Schedule and Performance Status: Removal of all equipment inside bldg 100% complete
Will decon equipment, steam clean the pit and start wiping ceiling tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Tom Dorm



Equipment: 1- Pick Up
1- Equip Trailer
1- 2yd loader
1- Cat 416 Loader
1- Fork Lift
1- Man Lift
1- Sissor Lift 1- Steam Cleaner
2- Demo Saws
2- Roll Off Boxes

Crew: T. Dormer
P. Andrea.
K. Holman
J. Paul
T. Sardelli

DAILY SITE REPORT

Job Name Pratt + Whitney

Date 12/15/89

Job Number 515153

Day Tue

Weather Conditions Clear, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Started filling WFL 3 with Citrikleen

0800 - Constructed a decon pad

0830 - Steam Cleaner delivered

0900 - Began Deconning heavy equipment

1000 - Began Steam Cleaning pit area

1100 - Took a sample of rinse water from pit area & Tested. Results still indicate Cyanide - will pump off water into portable tank supplied by CWT

1300 - Finish Steam Cleaning Pit - Pumped off water - vacuum water - Scraped out the sump - blew air on pit floor to dry.

1500 - Tried Shot blasting the pit floor. Shot Blaster will not work 1730 - End of Shift

Schedule and Performance Status: Start waxing ceiling Tomorrow

Additional-Extra Unanticipated Cost Factors: Sealed Trucks cannot enter Emille - No approval from State yet. Extra charges for demurrage anticipated

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Tom Dormer



Equipment: 1- Pick Up
1- Equip Trailer
1- 2 yd Loader
1- Cat 416 Buckhoe
1- Fork Lift
1- Man Lift
1- Sissor Lift
2- Roll Off Boxes

Crew: T. Dormer
P. Andreas
K. Hohman
J. Paul
J. Sardello

DAILY SITE REPORT

Job Name Pratt & Whitney

Date 12/6/89

Job Number 515153

Day Wed

Weather Conditions Cloudy, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting
0730 - Crew begins ceiling wipe down. 2 men in Sissor Lift starting
in South West Corner of building & working their way west. 2 men
in the man lift starting in the North West corner of the bldg and working
their way East.
1200 - 2/3 of ceiling complete
1230 - Continue wiping ceiling
1630 - Finish wiping ceiling
1730 - End of Shift

Schedule and Performance Status: Wipe down of ceiling 100% Complete. All
sampling will be done tomorrow

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: _____

Tom Dormer



DAILY SITE REPORT

Job Name Pratt & Whitney

Date 12/7/89

Job Number 515153

Day ~~Wed~~ Thurs

Weather Conditions Clear, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.): 0700 - Tailgate Safety Meeting

0715 - Crew dismantling Poly wall.

0800 - Plumbing waste feed liner

1045 - Jack Hill from FAS arrives on site

1145 - Begin Flushing waste feed liner & sampling - 1230 Finish

1230 - Started Taking Chip samples from pit area

1430 - Scott Singer - Jack Hill begin wipe samples, ceiling

1630 - Wipe Sampling of ceiling complete

1730 - End of Shift

Schedule and Performance Status: _____

Additional-Extra Unanticipated Cost Factors: _____

Orders, Directives, Notices and Protests: _____

Meetings: _____

Visitors: Jack Hill - IT FAS



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CORPORATION

DAILY SITE REPORT

Job Name Drath & Whitney

Date 12/18/89

Job Number 515153

Day Fri

Weather Conditions Cloudy, Cold

Site Conditions Dry

Daily Work Description and Comments (tests, changes, claims, etc.):

0700 - Crew Inventory Equipment & Materials
- Loading Trailer

0800 - Dismantled Step by Trailer. Plugged waste feed lines outside of bldg.

0930 - Front End loader taken off site

1000 - Man Lift & Sissor Lift taken off site

1230 - Truck from Freehold Cartage arrives on site - weighs & manifests
1 roll off box. Weighs 2nd roll off box. 2nd truck not
expected til late afternoon

* 2nd Truck expected on site between 1400-1500

Schedule and Performance Status: IT's Rental Equipment still to be picked up
- Office Trailer, 10 bottles of oxygen & acetylene

Additional-Extra Unanticipated Cost Factors:

Orders, Directives, Notices and Protests:

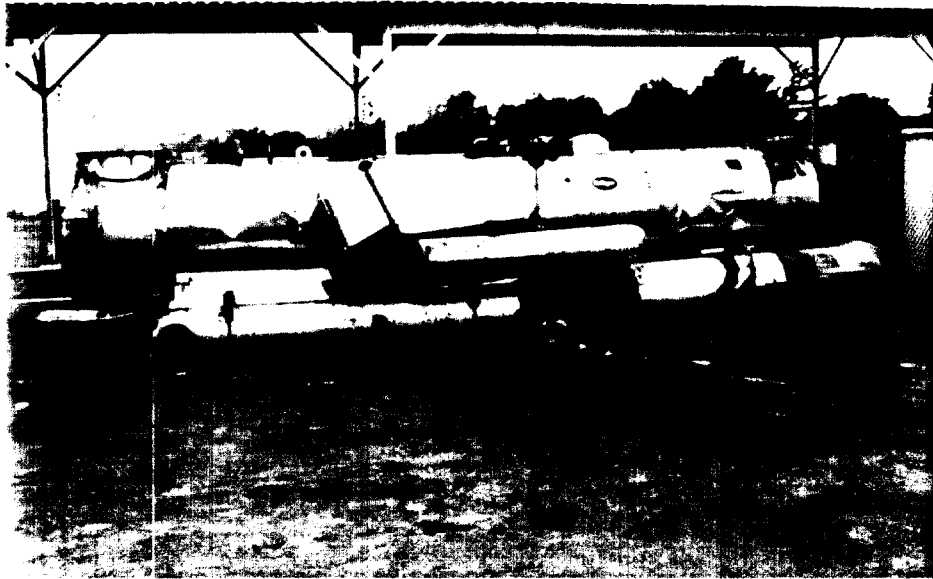
Meetings:

Visitors:

John S. [Signature]

APPENDIX F

Photographs Showing Closure Activities



Originals in color.

1. Incinerator train components dismantled and stored on-site in 1983. These included the waste heat boiler (back), the heat exchanger (front left), the flue piping and a portion of the air pollution control equipment

June 21, 1989



Originals in color.

2. Incinerator train components (center) and the dedicated enclosure (right) for these.

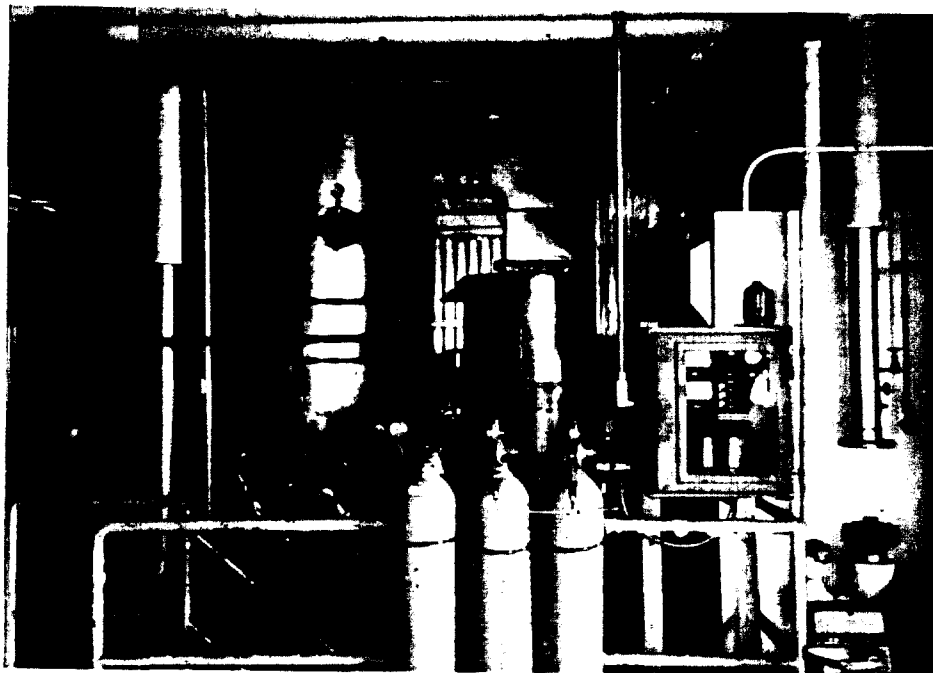
June 21, 1989



Originals in color.

3. The combustion chamber and the associated above ground piping prior to start of closure.

June 23, 1989



Originals in color.

4. The air pollution control equipment located inside the building in a pit.

June 23, 1989



Originals in color.

5. The outside view of the building that houses the active wax/solvent storage tank and the air pollution control equipment. The combustion chamber is located on the side of the building and the exhaust stacks are located on top of the building.

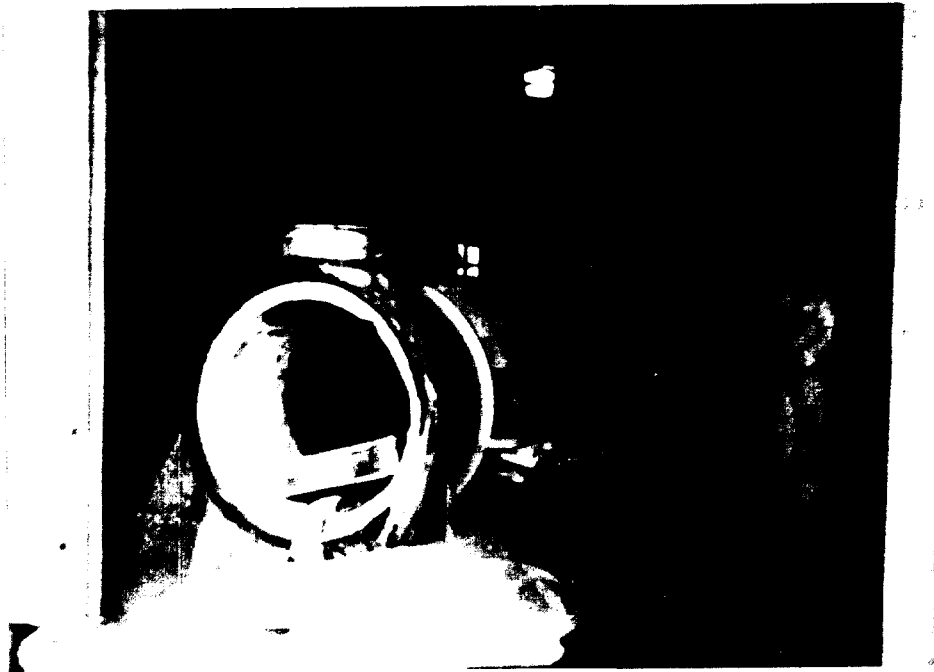
June 23, 1989



Originals in color.

6. Ground is covered with plastic sheet prior to dismantling of outside piping for storing dismantled piping.

November 14, 1989



Originals in color.

7. Insulation removal from the large heat exchanger.

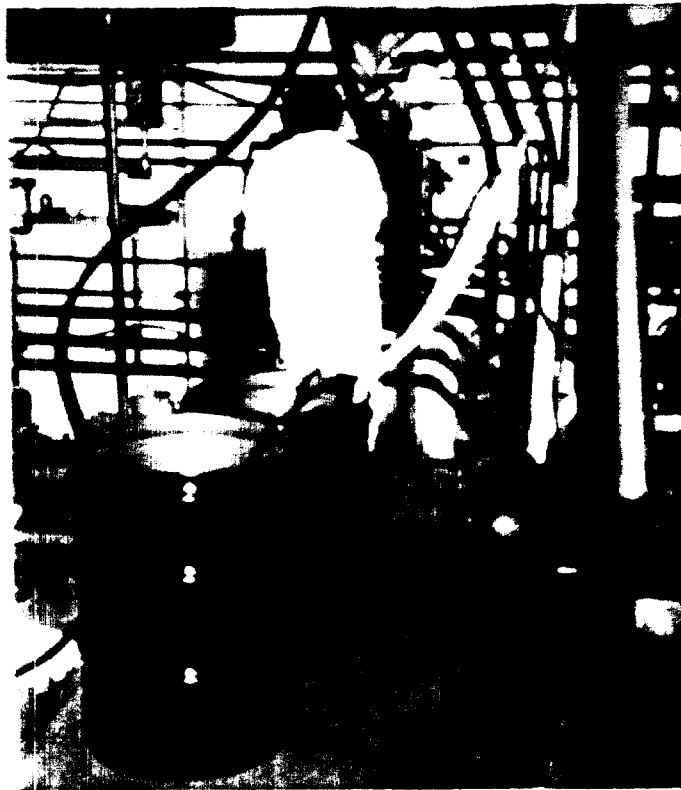
November 14, 1989



Originals in color.

8. Waste feed line decontamination set up.

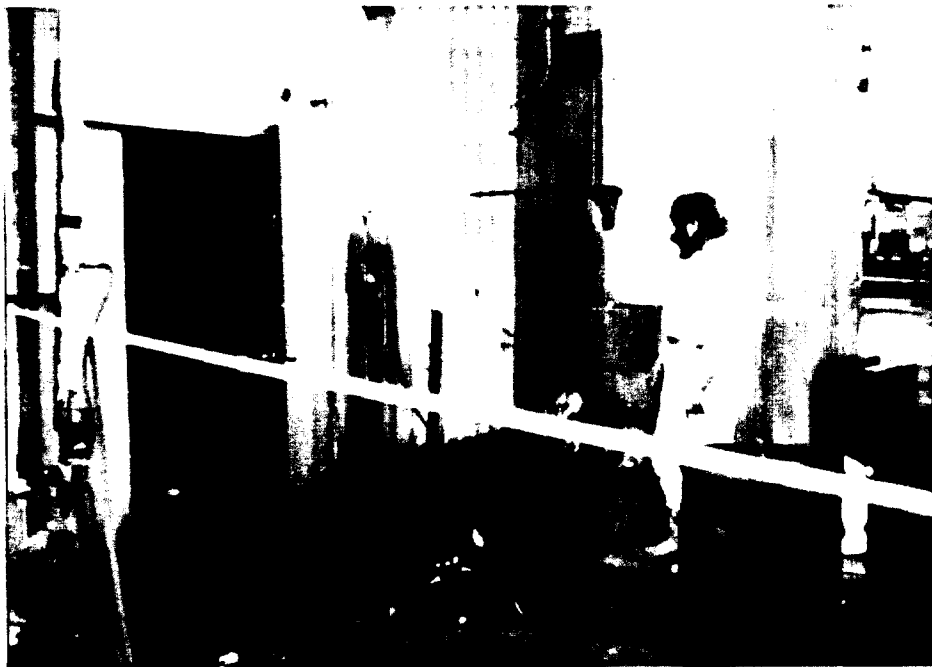
November 15, 1989



Originals in color.

9. Rinsate collection system for waste feed line decontamination set up.

November 15, 1989



Originals in color.

10. Waste feed line flushing.

November 15, 1989



Originals in color.

11. Rinsate collection from waste feed line flushing operation.

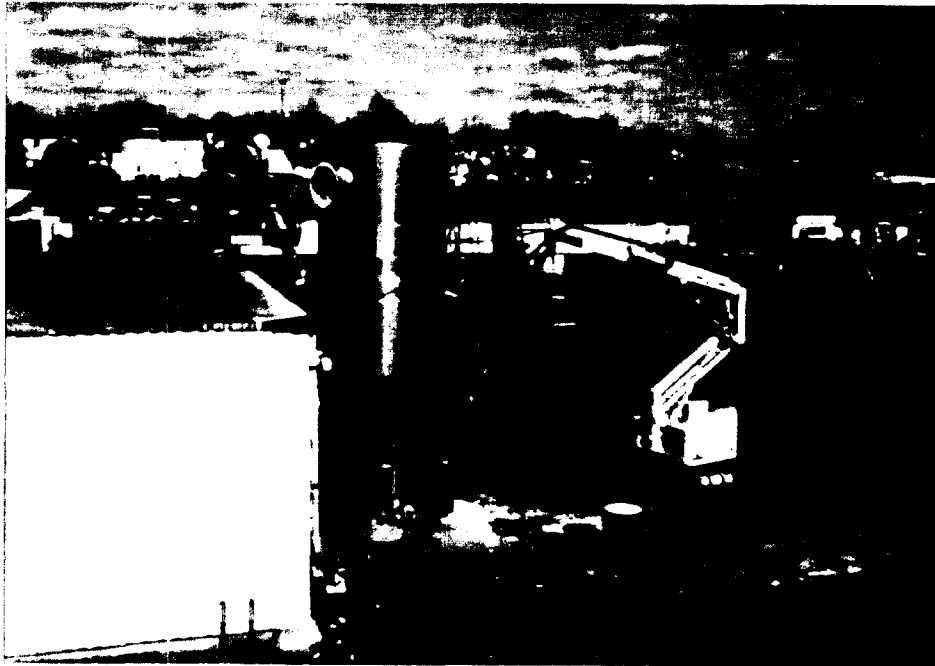
November 15, 1989



Originals in color.

12. Plastic barrier inside the building.

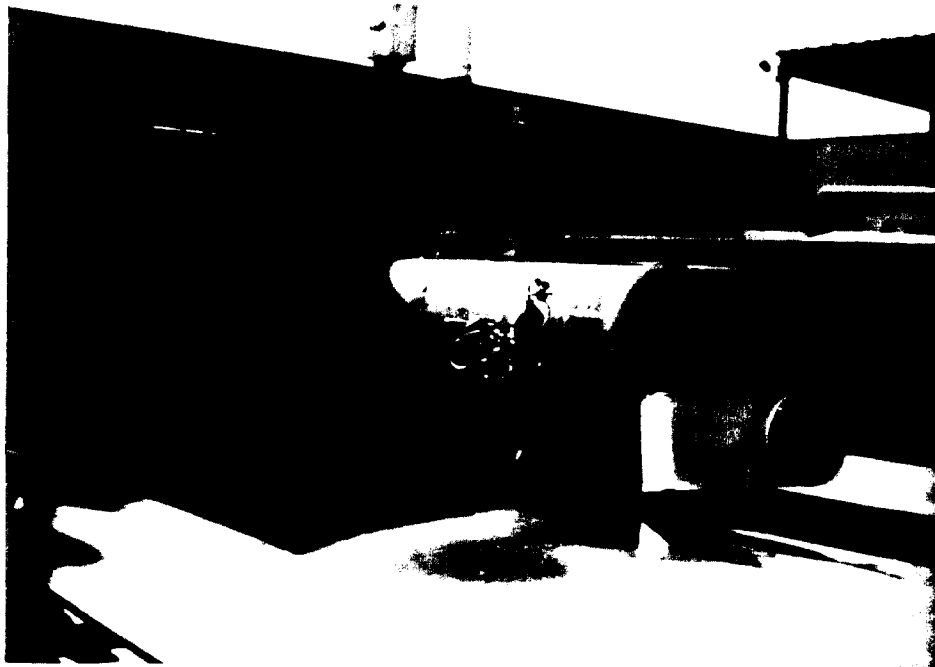
November 16, 1989



Originals in color.

13. Preparation for dismantling the combustion chamber.

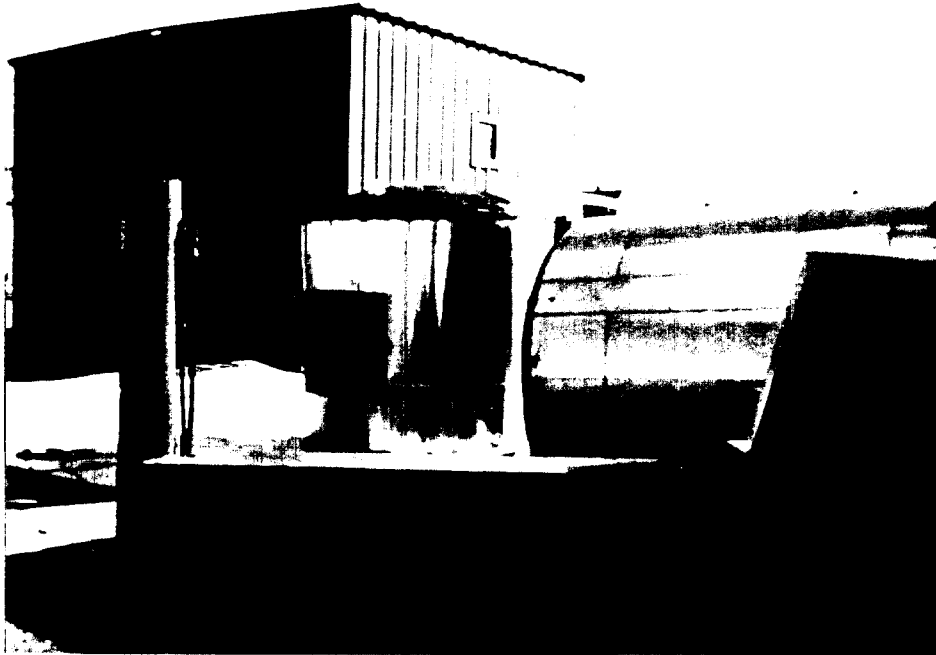
November 17, 1989



Originals in color.

14. Removal of the large heat exchanger.

November 17, 1989



Originals in color.

15. The combustion chamber is dismantled and lowered to ground.

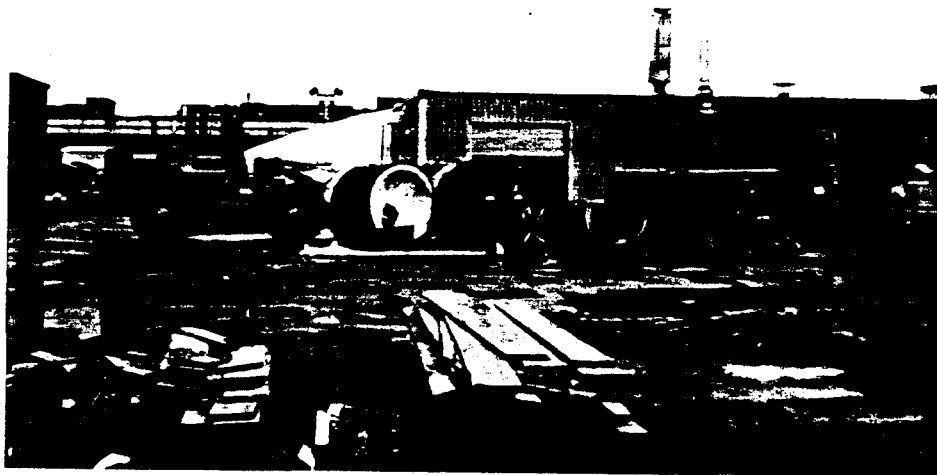
November 17, 1989



Originals in color.

16. Removal of refractory from combustion chamber.

November 20, 1989



17. Dismantled combustion chamber and heat exchanger.

November 22, 1989



18. Combustion chamber pad after removal of the combustion chamber.

November 22, 1989



19. Concrete pad prior to removal.

November 29, 1989



20. Concrete pad completely broken up.

November 29, 1989



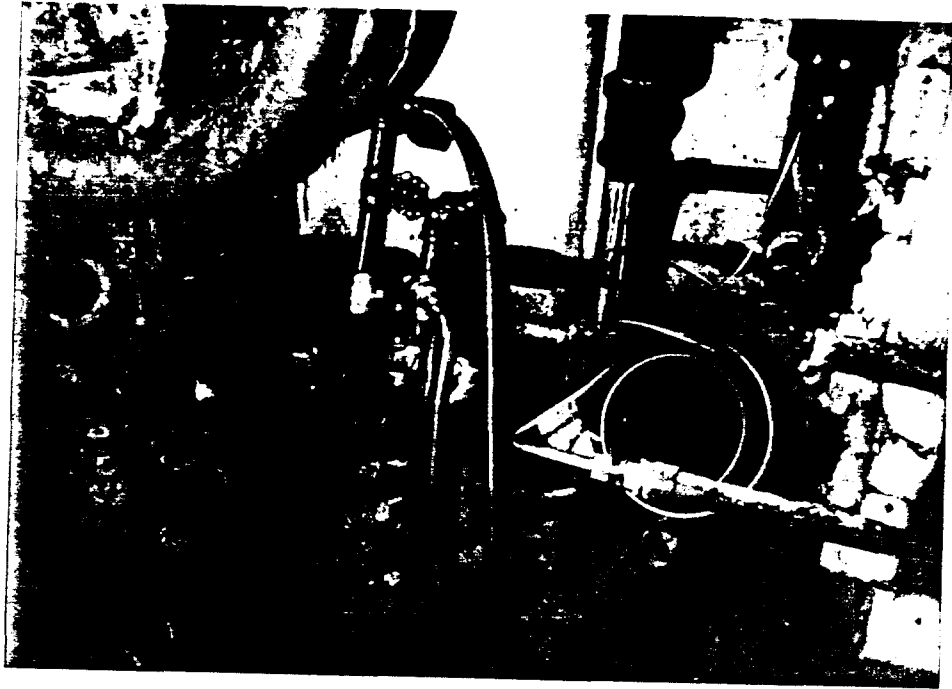
21. Concrete pad completely removed.

November 29, 1989



22. Boarded, tarped and secured flat bed trailer containing large dismantled equipment pieces ready for transport.

December 2, 1989



23. Final round of waste feed line flushing.

December 7, 1989



24. Final round of rinsate collection.

December 7, 1989



25. Waste feed line rinsate sampling.

December 7, 1989



26. Waste feed line rinsate sampling.

December 7, 1989



27. Ceiling wipe sampling.

December 7, 1989



28. Scrubber pit concrete chip sampling.

December 7, 1989



29. The last two roll-off containers containing small equipment pieces and debris ready for transportation.

December 8, 1989

APPENDIX G

Health and Safety Plan

HEALTH AND SAFETY PLAN

**PRATT AND WHITNEY
EAST HARTFORD, CONNECTICUT**

**Prepared for
Pratt and Whitney
600 Main Street
East Hartford, Connecticut 06108**

**Prepared by
IT Corporation
2790 Mossdale Blvd.
Monroeville, PA 15146**

November 8, 1989

Project No. 515153

**HEALTH AND SAFETY PLAN
PRATT & WHITNEY, EAST HARTFORD, CONNECTICUT**

A. INTRODUCTION

This plan describes the site Health and Safety procedures that will be implemented and followed by International Technology (IT) and subcontractor personnel during project activities at the Pratt and Whitney Facility in East Hartford, Connecticut.

The requirements of this plan shall apply to all personnel at the work site, including regulatory personnel. IT policy is to conduct all activities in a manner that protects the health of project personnel and the public.

All applicable chemical hazards previously identified have been used as guidelines for this health and safety plan. All activities shall be conducted so that the health and safety of the project personnel and the public are completely protected. The following program includes general safe work practices, personnel protection, personnel and equipment safety, medical surveillance, air quality monitoring and training requirements. The plan covers the safe work practices for physical, chemical and fire hazards. In addition, details for emergency response, first-aid capabilities and fire control are included.

The specification of this health and safety plan shall meet all requirements of both state and federal regulations, and IT procedures.

B. RESPONSIBILITIES

Health and Safety Representative

The Health and Safety representative will be responsible for technical development and coordination of the site health and safety program. Any discussions on matters relating to project health and safety with the Connecticut DEP, USEPA or OSHA will be the responsibility of the health and safety representative. In addition, this individual will provide the site project manager with details concerning the complete work specific programs.

Project Manager

The project manager shall be responsible for field implementation of the health and safety plan. This shall include communication of the site requirements to all personnel participating in the project. Additional communication may be required by the site supervisor to include consultation with the safety and health representative regarding appropriate changes to the health and safety plan. Tailgate safety meetings will be held daily to communicate pertinent health and safety information to all project personnel.

Team Members

All team members shall be responsible for understanding and complying with all site health and safety requirements. One member of the project group shall be assigned the responsibility of cleaning and maintaining the safety equipment and maintaining the decontamination area. All members of this group shall have been provided formal classroom training regarding the hazards and protection involved with this project.

C. HAZARD ASSESSMENT

In dealing with the operations involved in a potentially hazardous location, a variety of safety hazards may exist. All personnel working within the exclusion zone will be familiar with these hazards. These safety precautions will be reiterated during the daily Tailgate Safety meetings.

C.1 Chemical Hazards

The potential chemical hazards involved in this project are airborne concentrations of organic hydrocarbons and heavy metals. Organic vapors may pose a flammability hazard as well as a health hazard.

High vapor concentration of the materials listed in the table in Section C.2 are potentially irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, may cause unconsciousness, and may have other central nervous system effects. Prolonged or repeated liquid contact with the skin will dry and defat the skin leading to dermatitis or irritation.

Exposure to dust containing heavy metals may cause effects such as acute poisoning, cumulative poisoning, anemia, and cancers. Such effects are normally associated with long term exposures.

Sodium hydroxide will be used for decontamination. Sodium hydroxide is extremely corrosive to the skin and eyes.

C.2 Exposure Standards

Threshold Limit Values (TLVs) refer to airborne concentration of substances which represent conditions that nearly all employees may be repeatedly exposed to day after day without adverse effect. These threshold limits are prescribed by the American Conference of Governmental Industrial Hygienist (ACGIH). They are based upon the best available information from industrial experience and animal or human studies. Because of the wide variation in individual susceptibility, a small percentage of workers may experience discomfort from some substances at

concentrations below the recommended values. It has been policy to use these guidelines for good hygienic practices; however, whenever applicable, stricter guidelines may be utilized.

Currently, exposure guidelines to pesticides and other chemical substances are regulated by the Federal Occupational Safety and Health Administration (OSHA). These exposures are based upon the Time-Weighted Average (TWA) concentration for a normal 8-hour workday and a 40-hour work week. Several chemical substances have short-term exposure limits or ceiling values which allow a maximum concentration to which workers can be exposed continuously for a short period of time without suffering from (1) irritation, (2) chronic or irreversible tissue damage, (3) narcosis of a sufficient degree to result in accidental injury, impair self-rescue, or substantially reduce work efficiency.

The short-term exposure limit (STEL) is defined by the American Conference of Governmental Industrial Hygienists (ACGIH) and Federal OSHA as a 15-minute time-weighted-average exposure which should not be exceeded within a two hour time period during a workday even if the 8-hour time weighted average is within current limits. Federal OSHA requires that a 15 minute "ceiling" concentration never be exceeded for that chemical constituent. This notation appears as the letter "C" after the chemical name.

Under certain chemical substance listings, there may appear a "skin" notation. This refers to the potential contribution to the overall exposure by the cutaneous route including mucous membranes and eye, either airborne or by direct contact. Little quantitative data is available describing absorption as a function of the concentration to which the skin is exposed. Biological monitoring may be considered to determine the relative contribution of dermal exposure to the total dose.

The ACGIH and Federal OSHA have recognized that certain chemical substances may have the potential to be a carcinogen in humans from epidemiological studies, toxicology studies and, to a lesser extent, case histories. Because of the long latency period for many carcinogens, it is often impossible to base timely risk management decisions on the results of such information. Two categories of carcinogens are designated based upon the most current literature and information. These include confirmed human carcinogens and suspected human carcinogens. These chemical categories are recognized to have cancer potential rather than confirmatory proof is based on either 1) limited epidemiologic evidence, experience of clinical reports of single assess, or 2) demonstration of carcinogens in one or more animal species by appropriate methods. The worker potentially exposed to a known human carcinogen must be properly equipped to insure virtually no contact with the chemical constituents. In the case of a suspected human carcinogen, worker exposure by all routes must be carefully controlled by the use of personal and respiratory protection, and administrative or engineering controls.

The following table represents the guidelines currently established by federal OSHA for the materials listed as possible contaminants.

<u>CHEMICAL</u>	<u>OSHA PEL (8 HOUR)</u>	<u>OSHA STEL</u>	<u>OSHA CEILING</u>
METALS			
Arsenic	10 ug/m ³	--	--
Barium	0.5 ug/m ³	--	--
Cadmium	0.2 mg/m ³	--	0.6 mg/m ³
Chromium	0.5 mg/m ³	--	--
Copper	1 mg/m ³	--	--
Lead	50 ug/m ³	--	--
Mercury	--	--	1 mg/10 m ³
Selenium	0.2 mg/m ³	--	--
Silver	0.01 mg/m ³	--	--
ORGANICS			
Carbon Tetrachloride	2 ppm	--	--
1,1 Dichloroethylene	200 ppm*	--	--
Methylene Chloride	500 ppm	--	1,000 ppm
Tetrachloroethylene	50 ppm*	200 ppm*	--
1,1,1 Trichloroethane	10 ppm	--	--
Trichloroethylene	100 ppm	200 ppm	--

* Hour TWA limit recommended by the American Conference of Governmental Industrial Hygienists (ACGIH).

D. AIR MONITORING

Air monitoring for organics and/or metals will be conducted as necessary. NIOSH approved sampling and analytical methods will be used; samples will be analyzed at a laboratory accredited by the American Industrial Hygiene Association (AIHA). Results of personal exposure samples will be used to determine ongoing monitoring frequency.

E. GENERAL WORK PRACTICES

Protective clothing and respiratory protective equipment will be used for various stages of the operation as needed. The level of protection will be specified in the following section depending upon the degree of hazard. (see section 12)

All work being performed at this facility will use the "buddy" system. Prior to beginning the work each day, buddies will be assigned. These team members will keep in visual contact with each other at all times. One member will be responsible to ensure the safety of the other team members. These team members will be aware of any slip, trip, and all lifting hazards along with any potential exposure to chemical substances, heat stress, and general hazards within the work areas. All information regarding work to be performed, emergency procedures, and health and safety hazards will be reviewed before the work begins during

a daily Tailgate Safety meeting. No work will be performed without completing these procedures and appropriate documentation.

All operators of trucks and heavy equipment used on site will be properly trained in the inspection and operation of such equipment. The site supervisor will be responsible to check the proficiency of the operator. One standby person will provide guidance to the equipment operator using either two-way radios or universal hand signals. Perimeter barricades will be placed around the particular equipment used in a fixed location. Audio and/or visual backup alarms will be utilized on all heavy equipment on site.

Only authorized personnel will be permitted in the work area. These authorized individuals must have successfully completed a medical exam and have been properly trained in the use of respiratory protective equipment and specific health and safety hazards. All visitors shall check with the IT representatives in the administrative office, and with the on-site security guard.

Personnel will be prohibited from being transported by any other means than those prescribed for movement of personnel. When trucks or other heavy equipment enters or leaves the site, flagman will direct traffic. This should minimize the possibility of accidents and traffic jams.

Fire extinguishers will be on site. In the event of an emergency, these materials will be ready for the worker's safety and protection. Any deviation from this site safety requirement must be discussed with the Regional Health and Safety Manager.

Smoking will not be permitted on the premises except in the support area or other specified location. Any employee not willing to comply with this procedure will be dismissed from the project immediately.

At least one qualified person competent in both American Red Cross first-aid techniques and cardiopulmonary resuscitation (CPR) will be part of the team performing a specified task. A complete first-aid kit will be readily available on site. If a serious injury occurs, the local hospital and ambulance will be summoned to evacuate the injured or ill person.

No electrical equipment will be permitted in areas where there exist a flammable atmosphere. All static ignition sources will be identified and eliminated by the use of bonding and grounding techniques.

Material Safety Data Sheets (MSDS) will be obtained for every chemical product used on site. This information will be made readily available to all employees upon request and stored in a central location. MSDS or applicable information will be available with regard to materials used in the soil collection and drilling process. All containers of any chemical products will be properly labeled to comply with the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200).

F. HYDROBLASTING SAFETY

Hydroblasting involves a stream of water at 2000 psi, therefore specific safety requirements apply:

- o The operator shall be thoroughly instructed in handling and operating the gun and nozzle and all accessories prior to use.
- o The operator shall wear goggles, faceshield and boots with metatarsal covers.
- o Prior to cleaning piping or vessels, all connecting lines shall be blinded or valved and locked to prevent entry of contaminants.
- o Barricades shall be erected to enclose the work area, and signs shall be posted to warn of high pressure equipment.
- o All components of the hydroblast system shall have a burst pressure at least 4 times the operating pressure.
- o A hose safety shroud shall be used on hoses if operating pressure exceeds 2000 psi.
- o The pressure control shall be a "deadman" type to safely reduce the nozzle discharge pressure when control is released.
- o The pressure discharge gauge shall be clearly visible at all times.
- o A pressure relief device must be installed on the pump and set at 110% of the maximum working pressure of the system.
- o A strainer or filter must be installed on the water supply system to prevent clogging.

G. HEAVY EQUIPMENT OPERATION

- o Only experienced, demonstrably proficient equipment operators will be used to operate such heavy equipment as backhoes, front-end loaders, cranes, etc. Where certification or licensing requirements exist, such personnel shall possess appropriate certification and/or licensing for operating specified heavy equipment.
- o While operating heavy equipment in the work area, the equipment operator shall maintain communication with a designated signalman through either direct voice contact or approved standard hand signals. In addition, all site personnel in the immediate work area shall be made aware of the equipment's operation.
- o All equipment, such as pipe, rubber, etc., shall be kept out of traffic lanes and access ways. Equipment shall be stored so as not to endanger personnel at any time.
- o A flagman with roadwork vest, signs, cones, and high-level warning signs shall be provided when it is necessary to control normal vehicular traffic due to vehicles entering or leaving the site.

H. FIRE SAFETY

- o Hot work shall not be conducted unless all requirements of ITC PRO 9571.1 (Welding, Cutting, and Other Hot Work in Hazardous Locations) have been met.
- o Equipment on-site shall be bonded and grounded, spark-proof, and explosion resisted, as appropriate. Particular attention to bonding/grounding shall be made during transfer of flammable/combustible liquids into vacuum trucks and when ventilation equipment is utilized.
- o A fire extinguisher with a minimum rating of 10B:C shall be strategically located in the area of active work.
- o No smoking shall be allowed in the work area.

I. REGULATED AREAS

The work area will include three separate zones: an exclusion ("hot") zone, a contamination reduction zone, and a support zone.

The Exclusion Zone will consist of the entire area of suspected contamination during operations. All employees will use proper personnel protective equipment when working in those areas. The exclusion zone will be a defined area where there is a possible respiratory and/or contact health hazard. In most instances this area will be the incinerator building, with the entrance used to delineate the beginning of the zone. The location of exclusion zone will be identified by cones or other appropriate means.

A Contamination Reduction Zone will be established. Decontamination will be performed in the contamination reduction zone. All personnel entering or leaving the exclusion zone will pass through this area in order to prevent any cross-contamination and for the purpose of accountability. Tools and any equipment or machinery will be decontaminated in a specific location. The decontamination of all personnel will be performed on site adjacent to the exclusion zone. Personal protective outer garments and respiratory protection will be removed in the contamination reduction zone and properly labelled. This zone will be outside the incinerator building.

The Support Zone will consist of an area outside the contamination reduction zone. The support zone will be located to prevent employees from being exposed to any organic vapors, dust or fiber levels above environmental levels. Eating, drinking, or smoking will be permitted in the support area only after washing both face and hands. This zone will be outside the incinerator building, away from the Contamination Reduction zone.

J. MEDICAL SURVEILLANCE

All personnel on-site will have successfully completed a preplacement or periodic (annual) physical examination. This should comply with ITC PRO 9410.1. This examination has been designed to comply with all regulatory requirements.

Pre-employment, Periodic Surveillance, Exit Physicals

Tests that are performed for employment physicals include the following listed:

- o Medical and occupation history and past gastrointestinal, hematologic, renal cardiovascular, reproductive, immunological and neurologic problems. Along with a history of respiratory disease and personal smoking habits.
- o Blood pressure measurements.
- o Complete blood count and differential to include hemoglobin and hematocrit determinations, red cell indices, and smear of peripheral morphology.

- o Blood urea nitrogen and serum creatinine
- o Urinalysis (dipstick and microscopic examination)
- o Audiometric examination
- o Pulmonary function test ($FEV_{1.0}$ and FVC)
- o SMA-25 or equivalent liver function test
- o EKG for employees over 45 years old or when other complications indicate the necessity
- o Drug and alcohol screen

IT Health and Safety Personnel maintain all employee medical records in the Regional offices. These records are continually reviewed and updated. IT will maintain all medical records for a period of 30 years, and a copy of these records will be made available to any employee for either review or copying upon request. In order to obtain a copy of the medical record, a written release order must be completed by the employee and submitted to the Health and Safety representative.

The medical surveillance provided to the employees includes a judgement by the medical examiner of the ability of the employee to use either positive or negative pressure respiratory equipment. Any employee found to have medical condition which could directly or indirectly be aggravated by exposure to these chemical substances or by the use of respiratory equipment will not be employed for the project.

All part-time employees and all non project personnel visiting the site will be restricted unless evidence is presented that a medical examination covering all the above mentioned tests have been conducted with satisfactory results.

K. TRAINING

All employees assigned to the project will have completed a training program which includes, as a minimum, the following:

- o Basic Safety Training - This course stresses the fundamentals of safety including the causes and prevention of slip, trip, and fall hazards, confined space entry, heat and/or cost stress illness and prevention.

- o Hazards and Protection - This course deals with the identification and recognition of safe work practices with toxic materials. The use and limitation of applicable protective clothing, respirators, and decontamination procedures. Respiratory fit-test is provided to each employee attending the course.
- o First Aid and CPR - It is necessary for some employees in this project group to have completed both first aid and CPR training.
- o Site Specific Safety Training - This course covers the mandates of the project health and safety plan. In particular, this stresses emergency response procedures and the various health hazards.
- o Waste Operation Training - This course is a hands on session with personal protective equipment, drum handling, sampling and decontamination procedures.

Any new employee who has not completed 40 hours of formal training class will receive this training before beginning to work on the project. This will apply to all subcontractors working for IT Corporation.

Tailgate Safety Meetings will be conducted at the beginning of each workshift, or whenever new employees arrive on the jobsite. The health and safety considerations for the particular day's activities will be reviewed, and the protective equipment and other materials necessary to perform the work will be outlined.

L. PERSONAL PROTECTION

LEVELS OF PROTECTION

Specific levels of protection will be used to safeguard IT employees on the job from potential hazards. Three distinct levels of protection may be required for this project. The final determination for IT personnel and subcontractors of any required level of protection will be based upon the hazards and current conditions of the worksite. The only person who may make this determination is the Health and Safety Manager. The situations requiring specific levels of protection are described in the following sections.

LEVEL B PROTECTION

Level B protection will be required when airborne concentrations exceed two times the AGGIH Threshold Limit Value (TLV) or OSHA PEL. Appreciable air contamination may occur from heavily contaminated soil excavation, requiring this level of protection. Work in areas where concentrations are unknown or may change suddenly also require Level B protection.

The following equipment will be used for Level B protection:

- o Full face air supply respirator (SCBA or Air Line) which is NIOSH/MSHA approved.
- o Hooded, chemical resistant outer suit. Tyvek or polytyvek inner suit.
- o Gloves (outer) - chemical resistant (Nitrile)
- o Gloves (inner) - chemical resistant (Latex)
- o Boots - chemical resistant Neoprene with steel toes with latex booties.
- o Hard hat
- o Hearing protection (if necessary)

LEVEL C PROTECTION

Level C protection will be required when the airborne concentration of suspected contaminants are known to be at or slightly above the ACGIH Threshold Limit Value (TLV) or the OSHA PEL. This level of protection will be utilized during most of the demolition, and when decontaminating tools and equipment.

The following equipment will be used for Level C protection:

- o Full face, air purifying respirators with organic vapor cartridge in combination with high efficiency particulate filter (HEPA) which are NIOSH/MSHA approved. Half face respirators will be utilized if accompanied by chemical splash goggles and specified by the Regional Health and Safety Manager.
- o Hooded, chemical resistant Polyethylene coated TYVEK. Saranex if possibility of wetting exists.
- o Gloves - (Outer) - chemical resistant Nitrile
- o Gloves - (Inner) - chemical resistant (latex).
- o Boots - (Outer) - chemical resistant Neoprene with steel toes or double latex booties where there exist only surface contamination over steel toed shoes.
- o Hard hat
- o Hearing protection (if necessary)

LEVEL D PROTECTION

The minimal level of protection that will be required of IT personnel and subcontractors at the site will be Level D. This level will be utilized in the support zone and other areas remote from the exclusion zone.

The following equipment will be used for Level D protection:

- o Coveralls
- o Boots/shoes - safety or chemical protection (latex booties) with steel toes.
- o Safety glasses or goggles
- o Hard hat
- o Chemical resistant nitrile or PVC protective gloves with surgical latex undergloves.

M. RESPIRATORY PROTECTIVE EQUIPMENT AND USE PROTOCOL

A comprehensive respiratory protection program has been established by IT Corporation. This program will be required in all locations where use of such equipment could lessen the potential for adverse health affects to any employee. The type of respiratory equipment will be continuously reevaluated based upon the current level of exposure. The only person who will be able to modify the level of respiratory protection is the regional Health and Safety Manager.

As part of the respiratory training program, each employee will have been instructed in the following elements:

- o Nature of the respiratory hazard on the work site and the appraisal of what may happen if the respiratory protection is not utilized.
- o Use and proper fitting of the respirator.
- o Cleaning, disinfecting, inspection, maintenance, and storage of the respirator.
- o Proper selection, capabilities, and respirator limitations.

The respiratory protection and training program will be conducted, documented, and recorded by the Health and Safety representative.

Routinely used respiratory equipment will be inspected, cleaned, and disinfected daily to help assure proper hygienic practices. A safety equipment custodian shall maintain the respirators. An inspection of these breathing devices will include the following:

- o Examination of the head straps for breaks, loss of elasticity, broken or malfunctioning buckles, and other attachments.
- o Examination of the facepiece for excessive dirt, cracks, tears, distortion, holes, or inflexibility.
- o Examination of the exhalation and inhalation valves for any foreign material, cracks, tears, distortion, in the valve. Additional checks will be made to inspect for proper insertion, defective valve covers, or improper installation.
- o Examination of air purifying elements for incorrect cartridge, expired shelf-life of the cartridge, cracks or dents in the cartridge or cartridge holder.
- o Examination of proper insertion of the cartridges into the facepiece and a check of the gaskets inside the cartridge holder.
- o Examination of air cylinders for adequate air volume. Only grade D air will be utilized for breathing air.

When Level C protection is required, respiratory cartridges will be changed daily. This requirement may be modified by the Health and Safety representative depending upon the exposure level of the air contaminants.

The safety technician will maintain the respiratory equipment and be knowledgeable in the cleaning and disinfection process. Each individual will scrub boots and gloves using detergent in warm water using a brush and then thoroughly rinsing with clear water. Finally, the respirators will be dried in a clean location after each day's use. If broken or malfunctioning parts are found during the cleaning process, these parts will be replaced or new respiratory equipment will be issued to the user.

The respiratory equipment will be stored in an area protected from any mechanical damage. These devices will also be stored in a location that provides protection against dust, heat, excessive moisture, or damage by chemical contact. The storage area for the respirators should be in a readily accessible location.

N. DECONTAMINATION PROCEDURES

PERSONAL DECONTAMINATION

A decontamination zone will be established at the perimeter of the exclusion zone. A step off area will be designated just outside the contamination zone. All employees entering from the exclusion zone will pass through the decontamination area to remove their respirators and/or protective clothing. The employees may then enter the break area after washing their face and hands. Employees must be screened by the "decon person" to ensure compliance with this procedure.

At the end of each work period (before eating, drinking smoking, or leaving the site) each person who has entered the construction area will decontaminate by passing through the contamination reduction line. Each of the following stations will be entered and used as appropriate.

- o Equipment/Tool Drop Station
- o Boot Wash - soiled boots will be washed in a tub containing a detergent solution.
- o Boot Wash - personnel will step into a tub containing rinse water after washing boots.
- o Glove Wash - intact gloves will be wiped clean over a glove wash bucket containing detergent and water.
- o Glove Rinse - washed gloves will be rinsed with water or wiped with a water wet towel.
- o Used coveralls will be dropped into a bag-lined garbage can for disposal at an approved facility.
- o Spent disposable respiratory or cartridges will be dropped into a bag-line garbage can.
- o Clean boots will be placed under the work table at the clean end of the corridor.
- o Clean respirators, hard hats, goggles and face shields will be placed on the work table at the clean end of the corridor.
- o Personnel may then exit the site through the access control point.

Soiled boots, hard hats, respirators, and other equipment will be inspected daily, washed and scrubbed in a detergent/water solution. After cleaning, equipment will be rinsed thoroughly in water and allowed to dry on a clean surface.

If there is a rip or tear in the employee's protective clothing, that individual will remove the torn garment in the decontamination area and new protective clothing will be issued in order for the employee to return back to work. The same procedure will apply to defective respiratory equipment.

EQUIPMENT DECONTAMINATION

Any equipment used inside the exclusion zone will be considered contaminated and must be cleaned before leaving the work site. Decontamination of all large equipment including generators, backhoes, and other equipment will be performed on site (prior to personnel decontamination). Verification that all equipment has been properly decontaminated will be the responsibility of the site project manager. Proper decontamination may include wipe samples of the surfaces of all equipment. All contaminated solvents generated from the cleaning operation will be collected and containerized for disposal.

SITE SECURITY

Controlled access to the regulated area will be established. Only authorized personnel shall be permitted to enter the regulated area. No one will enter the exclusion or the contamination reduction zones without appropriate authorization. Excavation and sampling operations will be suspended until unauthorized individuals have left the site.

- o All persons entering the regulated area will be equipped with appropriate personnel protective devices.
- o All persons entering the regulated area must be familiar with and abide by the health and safety plan.
- o All persons must have completed the necessary 40-hours training for uncontrolled hazardous waste site operations and emergency response.
- o All employees will sign in and out daily while performing duties on-site. The record of all site entry personnel shall be monitored with the site security officer.

O. HEAT STRESS

Remediation work in protective clothing may result in heat related disorders. One or more of the following control measures can be used to help control heat stress:

- o Provision of adequate liquids to replace lost body fluids. Employees must replace water and salt lost from sweating. Employees must be encouraged to drink more than the amount required to satisfy thirst. Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.

- o Replacement fluids can be a 0.1 percent salt water solution, commercial mixes such as Gatorade or other product, or a combination of these with fresh water. Employees should be encouraged to salt their foods more heavily.
- o Establishment of a work regimen that will provide adequate rest periods for cooling down. This may require additional shifts for workers.
- o Cooling devices such as vortex tubes or cooling vests and be worn beneath protective garments.
- o All breaks are to be taken in a cool rest area (77 degrees fahrenheit is best).
- o All employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.

During periods of high temperature and/or humidity, the site supervisor or the Health and Safety representative will continually observe the workers for symptoms of heat stress especially in areas where protective clothing is being worn. If the body's physiological process to maintain a normal body temperature fails, or are overburden due to excessive heat exposure, a number of physical reactions can occur ranging from mild symptoms such a fatigue, irritability, anxiety, and decreases in mental concentration. Heat related problems are presented below:

Heat Rash - This caused by continual exposure to heat and humid air, and aggravated by chaffing clothes. Heat rash decreases a person's ability to tolerate heat as well as becoming an irritating nuisance.

Heat Cramps - This is caused by profuse perspiration with inadequate water intake and chemical electrolyte imbalance. This results in muscle spasm and pain in the extremities and abdomen.

Heat Exhaustion - Increased stress on various organs to meet increasing demands to cool the body will result in signs and symptoms including shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

Heat Stroke - This is the most severe form of heat stress which must be treated immediately by cooling the body or death may result. Signs and symptoms include red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; and coma.

P. EMERGENCY RESPONSE PLAN

Emergency response procedures will be developed for extraordinary conditions that may occur at the work site and will be covered during the Tailgate Safety meeting.

GENERAL RESPONSE CONSIDERATIONS

Emergencies must be dealt with in a manner to minimize the health and safety risk to all site personnel. Work activities will be conducted in groups of at least two workers (buddy system) to provide continuous monitoring in the event of an emergency. Emergency signals will be developed to include a continuous 30-second blast of a siren or horn. Other signals will be reviewed such as those developed for restricted air flow or breathing difficulty. A stand-by person will be dressed and ready to assist in the event of an emergency.

FIRE/EXPLOSION

Upon notification of a fire or explosion on-site, the designated emergency signal shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

PERSONAL PROTECTIVE EQUIPMENT FAILURE

If any site worker experiences a failure or alteration of protection factor, that person and his/her buddy shall immediately leave the Exclusion Zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

OTHER EQUIPMENT FAILURE

If any other equipment on-site fails to operator properly, the Project Team Leader and site Safety Officer shall be notified and then determine the affect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

In all situations, when an on site emergency results in evacuation of the Exclusion Zone, personnel shall not re-enter until:

- 1) The conditions resulting in the emergency have been corrected.
- 2) The hazards have been reassessed.
- 3) The site safety plan has been reviewed.
- 4) Site personnel have been briefed on any changes in the Site Safety Plan.

RESPONSIBILITIES

The site project manager will have the responsibility for directing the response activity in the event of an emergency. The responsibilities are described below:

- o Assess the emergency situation and notify site security personnel.
- o Determine the required response measures by informing the site supervisor by radio communication.
- o Notify the appropriate response teams of the specific action that will be taken upon request.
- o Determine and coordinate the on-site personnel actions for the particular emergency situation.
- o Contact and coordinate with any governmental or regulatory agency.
- o Immediately complete the Supervisor Injury Report form upon occurrence of the accident or incident and list on the OSHA Occupational Injury/Illness form 200 if appropriate.

PUBLIC RESPONSE AGENCIES

Before the start of the construction and decontamination operations, the Project Manager will develop a list of public response agencies which may be contacted depending on the nature of the emergency. This list of contact agencies will include the name, address, and telephone number of the following:

- | | |
|-----------------------|----------------|
| o Police Department | 528-4401 |
| o Fire Department | 528-4173 |
| o Emergency Ambulance | 911 |
| o Poison Control | (212) 764-7667 |
| o Hartford Hospital | 524-2525 |

In the event of an emergency, an agency may assume authority for the emergency response. Personnel should be instructed to assist the agency in charge. The appropriate contacts include, but not limited to, the following:

o U.S. EPA	(617) 573-9644
o Connecticut DEP	566-2264
o U.S. Coast Guard	(800) 424-8802
o National Response Center	(800) 368-5888
o National Poison Control Center	(404) 588-4400

The list of contacts shall be posted at several prominent locations.

ACCIDENTS AND NONROUTINE EVENTS

The types of emergencies outlined below are not all inclusive and the corresponding response procedures will not be considered inflexible. Every accident presents a unique event that must be dealt with by key trained personnel. The prime considerations are to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at unnecessary risk.

SPILL PREVENTION CONTROL AND CLEANUP COUNTER MEASURE PLAN (SPCC)

Responsible Authority: Site Superintendent
Reporting Authority: OSC

On Site Equipment List Includes

- o Sorbent Pads
- o Sorbent Material
- o Over-Packs
- o HNU Meters
- o Fire Extinguishers
- o Air Horn
- o First Aid Kit
- o Rolls of Polyethylene sheeting
- o Brooms and Shovels
- o Self Contained Breathing Apparatus
- o Protective Clothing
- o Diaphragm Pump
- o Granular Lime

IT's basic approach to any spill or release is:

Control
Contain
Communicate
Clean-Up

In the event of a spill the drum staging area, the spilled material will have already been categorized, therefore, the nature of the material will be known. Based upon this knowledge the appropriate sorbent and/or neutralization material will be applied immediately to control and contain the material. The site superintendent will be notified who will then direct the clean-up operations and perform the required notifications.

If a spill occurs in the "Haz-Cat" area prior to characterization, the on-scene field chemist will determine the appropriate control measures to be initiated immediately. The site superintendent will be notified who will then direct the required clean-up activity.

IT's work plan for this project has been developed incorporating features to prevent and contain the release of any hazardous materials.

VAPOR EMISSIONS

In the event of significant vapor emission, all work shall stop immediately. The source of the emission shall be located and controlled as quickly as possible. State, local and USEPA authorities shall be notified if vapor levels are significant or if vapors leave the site. If a fire or explosion hazard exists, local authorities will be notified.

WORKER INJURY

If a person working in an area is physically injured, American Red Cross first-aid procedures will be followed. Depending upon the severity of the injury or illness, emergency medical response may be obtained accordingly. If the person can be moved, that person will be taken to a location from the work area where emergency first aid treatment can be administered. The local emergency medical facility should be contacted along with an ambulance.

The site project manager will prepare a written report detailing the particular accident, its causes, and consequences within one day from the time of the accident.

PERSONNEL INJURY IN THE EXCLUSION ZONE

Upon notification of an injury in the Exclusion Zone, the designated emergency signal shall be sounded. All site personnel shall assemble at the decontamination line. The rescue team will enter the Exclusion Zone (if required) to remove the injured person to the hotline. The Site Safety Officer and Project Team Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to the movement to the Support Zone. The on-site EMT/or First Aider shall initiate the appropriate first aid, and contact should be made for an ambulance with the designated medical facility (if

required). No persons shall re-enter the Exclusion Zone until the cause of the injury or symptoms is determined.

PERSONNEL INJURY IN THE SUPPORT ZONE

Upon notification of an injury in the Support Zone, the Project Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the on-site EMT/or First Aider initiating the appropriate first aid and necessary follow-up as state above. If the injury increases the risk to others, the designated emergency signal shall be sounded and all site personnel shall move to the decontamination line for further instructions. Activities on-site will stop until the added risk is removed or minimized.

If the injury to the worker is of chemical nature, the following first-aid procedures will be instituted as quickly as possible:

- o Eye Exposure - If contaminated material gets into the eyes, the eyes will be flushed immediately at the eyewash station using copious amounts of water while lifting up the lower and upper eyelids.
- o Skin Exposure - If contaminated sludge or corrosive liquid material gets on the skin, the affected area will be washed with soap or mild detergent.
- o Inhalation - If an individual inhales a volume of toxic or corrosive vapors, the employee will be removed to fresh air at once. If breathing has stopped, artificial respiration will be performed on the affected individual until medical attention can arrive on scene and transport the patient to the nearest medical facility.
- o Ingestion - In the event a person ingests a toxic liquid or solid material, medical attention shall be obtained at once.

Q. RECORDKEEPING

All exposure monitoring conducted during the project will be recorded along with the description of the field activities. The recorded results and the methodologies will be kept for a period of at least 30 years.

Records of completed formal health and safety training for any project employee are available upon request. Any health and safety training performed on site or prior to beginning the project will be documented accordingly.

All Tailgate Safety Meetings (daily) will be kept in the form of a log book for review by the Health and Safety Coordinator. Tailgate Safety meetings are conducted prior to the beginning of ever workshift in order to discuss the work activity, potential exposure to various chemicals, physical hazards, type of protective clothing, and miscellaneous items of interest.

All logs and reports required by either local, state, and federal regulations will be kept and submitted accordingly.

APPENDIX H

Safety Meeting Logs

TAILGATE SAFETY MEETING

Division Facility Light
Date Time 7:00 AM Job Number SLS15
City State CONNECTICUT
Site
Type
Contract

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment Tyvek, Rubber Gloves, Hard Hat, Full face respirator

Wear harness, Safety glasses, ear plugs

Chemical Hazards Cyanide, Hydro Carbons, waste

Physical Hazards Slip (wet surfaces), Trip (obstacles)

Fall (working from elevated positions)

Emergency Procedures Take primary First Aid actions, Call 911

Call 911

Hospital/Clinic Put Emergency Services Phone () 5-111 Paramedic Phone ()

Hospital Address

Special Equipment Fork lift, Man lift, First Aid kit

Other

ATTENDEES

NAME PRINTED

SIGNATURE

Paul Andrews
Frank Hark
John Pail
Kevin Mahan

Paul Andrews
Frank Hark
John Pail
Kevin Mahan

Meeting conducted by Paul Andrews

NAME PRINTED

SIGNATURE

Supervisor John Derris

Manager

TAILGATE SAFETY MEETING

Date: 7/15/08

Facility: AMC

PH

Time: 7:00 AM

Job Number: 515153

Supervisor: John H. Smith CTE

1. Slip, Trip & Fall (Fall Protection)

2. Electrical

3. Confined Spaces

4. Heavy Equipment

5. Weather

6. Other

7. Emergency Procedures

8. First Aid

9. Fire Safety

10. Other

11. Other

12. Other

13. Other

14. Other

15. Other

16. Other

17. Other

18. Other

19. Other

20. Other

21. Other

22. Other

23. Other

24. Other

25. Other

26. Other

27. Other

28. Other

29. Other

30. Other

31. Other

32. Other

33. Other

34. Other

35. Other

36. Other

37. Other

38. Other

ATTENDEES

NAME PRINTED

SIGNATURE

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

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John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

John H. Smith

Rescue Clinics: First Emergency Services Phone (1-511) Paramedic Phone: ()

Hospital Address: _____

Special Equipment: Fork Lift, Man Lift, Front End Loader

Other: _____

TAILGATE SAFETY MEETING

DNV _____ Facility TGH
 DN _____ Time 7:00 AM Job Number 515153
 CO _____ Address East Highland CT
 ST _____
 TR _____
 E _____

SAFETY TOPICS PRESENTED

Protective Clothing: Tyvek	Protective Clothing: Rubber gloves	Protective Clothing: Full face resp.
Protective Clothing: Safety glasses	Protective Clothing: ear plugs	

Chemical Hazard: Cyanide, Hydro Carbon, Gasoline

Physical Hazards: Slip (wet or slick surfaces)
 Fall (working from elevated positions)

Emergency Procedures - Primary First Aid, Emergency Operations

Hospital/Clinic: PAK Emergency Services Phone () 5-111 Paramedic: PHOTOGRAPH

Hospital Address: _____

Special Equipment: Fork lift, Man Lift, Front End loader

Other _____

ATTENDEES

RECEIVED
JAN 10 1964
FBI
RECEIVED
JAN 10 1964
FBI
RECEIVED
JAN 10 1964
FBI

SIGNATURE

Paul Anger

David Paul

Kevin Newman

Jon Dornier

Testing conducted by Address

NAME PRINTED: ALAN D. SMITH

SIGNATURE _____

Mansoor _____

TALENT SAFETY MEETING

Facility

300 Ave

SE-5153

WILKINSON CT

SAFETY TOPICS PRESENTED

Common Forklift Safety
Cyanide
If you cannot see, stop

Work or slide
Use Fire for Washington

Emergency Procedures
Phone Primary First Aid

SAFETY 111

Special Clinic
First Aid Emergency Sec Phone () SE-1111

Hospital Address

Special Equipment
Front End loader, Motor (1:10:00) 1111

Other

ATTENDEES

NAME

SIGNATURE

NAME

SIGNATURE

NAME

SIGNATURE

NAME

SIGNATURE

NAME

SIGNATURE

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Other

ATTENDEES

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SAFETY THINGS TO REMEMBER

1. Wet or slide on wet
 2. Trip, or about
 3. One primary E.A.

Emergency Ser. Phone: 5-111

Hospital Address: _____

Special Equipment: Fork Lift, Man Lift, Free Climbing

Cutting Fuchs, Demo Saus.

Other _____

ATTENDEES

NAME: John D. Smith SIGNATURE: John D. Smith

Andreas

NAME PRINTED: SPENCER

TAILGATE SAFETY MEETING

DATE: 10/10/11 FACILITY: PAK
BY: John Anderson Job Number: SI 5753
C: John Anderson Car: Hand for S. C.
S: John Anderson Phone: 5-1111

SAFETY TOPICS PRESENTED

Proper use of Tyvek, Sarcos, and other protective gloves.
Use of safety goggles and safety glasses.
Chemical safety: Hydrocarbons, Hydrocarbons, etc.
Proper use of wet or slick surfaces. If you have to
walk on a wet or slick surface, use proper walking technique.
Emergency First Aid: Primary First Aid, Secondary First Aid, etc.
Call 5-1111

Hospital: PAK Emergency Ser. Phone: 5-1111 Paramedic Phone: 5-1111

Hospital Address: PAK

Special Equipment: Man lifts, Fork lift, Front End Loader,
Cutting torch, Demosaws.

Other:

ATTENDEES

NAME	SIGNATURE
<u>Paul Anderson</u>	<u>Paul Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>
<u>John Anderson</u>	<u>John Anderson</u>

*Meeting conducted by: Paul Anderson
NAME PRINTED: Paul Anderson SIGNATURE: Paul Anderson
Supervisor: Paul Anderson Manager: Paul Anderson

TAILGATE SAFETY MEETING

Topic: SAFETY Facility: SAFETY
Time: 7:00 AM Date: 11/11/08
Location: SAFETY

SAFETY TOPICS FOR DISCUSSION

1. Personal Protective Equipment - Tyvek, Scaffolding
2. First Aid - CPR, AED, eye protection, ear protection
3. Hydrocarbon Hazards - Hydrocarbon Hazards
4. Slips, Trips, and Falls - Slip, trip or slick surfaces
5. Heavy Lifting - elevated positions, form
6. Emergency Procedures - fire, primary first aid

Organized by: Black Emergency Ser. Phone () 5111
Meeting Address: SAFETY

Special Equipment: Fork lift, Front End loader, Power Wash, Cutting
Toolbox, Demo saws

Other:

ATTENDEES

NAME PRINTED	SIGNATURE
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>
<u>SAFETY</u>	<u>[Signature]</u>

Meeting conducted by: SAFETY
NAME PRINTED: SAFETY
Signature: [Signature]

WALL GATE SAFETY MEETING

DATE: 10/10/77

TIME: 10:00 AM

LOCATION: WALL GATE

ATTENDEES: [illegible]

AGENDA: [illegible]

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

9. [illegible]

10. [illegible]

11. [illegible]

12. [illegible]

13. [illegible]

14. [illegible]

15. [illegible]

16. [illegible]

17. [illegible]

18. [illegible]

19. [illegible]

20. [illegible]

ATTENDEES

[illegible signature]
[illegible signature]
[illegible signature]
[illegible signature]

[illegible signature]

[illegible signature]

WATERGATE SAFETY MEETING

SAFETY TOPICS

Emergency Ser. Phone # 5-1111

Special Equipment Fork lift, Front end loader, Backhoe, Saws

Other workers for other contractors e.g. [unclear]

ATTENDEES

SIGNATURE

[Signature]
[Signature]
[Signature]
[Signature]

DATE

SIGNATURE

10/10/95

EMERGENCY SALVAGE MEETING

SAFETY FORM

Type

Emergency Salvage

Trip

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

Emergency Salvage

ATTENDEES

John Doe
Jane Doe
Bob Doe
Alice Doe
Charlie Doe
David Doe
Eve Doe
Frank Doe
Grace Doe
Henry Doe
Ivy Doe
Jack Doe
Karen Doe
Leo Doe
Mia Doe
Noah Doe
Olivia Doe
Peter Doe
Quinn Doe
Ryan Doe
Sophia Doe
Theodore Doe
Uma Doe
Victor Doe
Wendy Doe
Xavier Doe
Yara Doe
Zoe Doe

NAME PRINTED

Signature

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1965

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James D. [illegible]
[illegible]
[illegible]

SIGNATURE

ATTENDANCE

Other

Special Agent

Inspector

Assistant

Chief

Director

Commissioner

Deputy

Chief of Police

Chief of Bureau

Chief of Division

Chief of Section

Chief of Unit

Chief of Detail

Chief of Staff

Chief of Administration

Chief of Finance

Chief of Legal

Chief of Training

Chief of Research

Chief of Planning

Chief of Evaluation

Chief of Information

Chief of Communications

TAILGATE SAFETY MEETING

Time

Location

Sheet

SAFETY TOPICS

waste water

objects on ground

from elevated

per very close

Phone

Sheet

Front End

Front End

Torch

Man 1.5

NAME PRINTED

ATTENDEES

SIGNATURE

NAME PRINTED

SIGNATURE

Manager

UNITED STATES AIR FORCE MEETING

UNITED STATES AIR FORCE

HEADQUARTERS, AIR FORCE

WASHINGTON, D. C.

OFFICE OF THE SECRETARY

ATTENTION: [illegible]

DATE: [illegible]

TIME: [illegible]

LOCATION: [illegible]

TOPIC: [illegible]

Special [illegible]

Other [illegible]

ATTENDEES

SIGNATURE

[illegible signature]
[illegible signature]
[illegible signature]
[illegible signature]

Meeting [illegible]

Andres

NAME [illegible]

SIGNATURE

PAUL GATTSALPANI

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Journal of Management Education 30(6)

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Plancher-Guillouville-Poulle

SECRET

THE

Emerson, Robert, 1839-1903

Occupation: Student Sec. Phone: 1-541-1111 Home Phone: 1-541-1111

Hospital Address _____

Special Equipment	Private Light Sisser	6.55	Fraser & Neave
Machine for	6.55		

Other: inside of citra clean from

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Emergency Ser. Phone () 531

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THE UNIVERSITY OF CHICAGO

1990

NAME (PRINTED)

Address

Missing (check box)

[Handwritten signature]

ATTENDEES

Other cause all areas of skin which contact

Special Equipment: Man lift, Sissor lift, etc.

Hospital/Address: Hospital Emergency Sv. Phone: (511) 111

Emergency: (511) 111

Emergency: (511) 111

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APPENDIX I

Copies of Manifests



HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address PRATT & WHITNEY (MS 122-16) 400 MAIN STREET, EAST HARTFORD, CT 06108		C T D 9 9 0 6 7 2 0 8 1 0 2 0 6 3		4. State Manifest Document Number CWMA 476051	
4. Generator's Phone () 203 565-3435		5. Transporter's Company Name Sealand Environmental		6. US EPA ID Number CT 09805211280	
5. Transporter's Phone () 203 225-1817		6. US EPA ID Number CT 09805211280		7. State Transporter's ID 1409 A CT	
7. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT, INC. Emelle Facility Alabama Highway 17 at Mile Marker 163 Emelle, Alabama 35459		8. US EPA ID Number AL D 0 0 0 6 2 2 4 6 4		8. State Transporter's Phone 203 225-1817	
9. Designated Facility's ID Same		9. Facility's Phone 205/652-9721		10. State Facility's ID Same	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RO, HAZARDOUS WASTE, SOLID, N.O.S. (P001, P007, P009) ORN-E NA9189 (P001, P007, P009) number J 52286		001	CM	30540	P
b. CWM Profile Number					
c. CWM Profile Number					
d. CWM Profile Number					
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information		a. L c. c b. b d. d			
Work Order #:		Purchase Order #:			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed/Typed Name		Signature		Month Day Year	



*print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

GENERATOR

ACILITY



HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Print or type. (Form designed for use on elite (12-pitch) typewriter.)

4.69

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No.

2. Page 1 of

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

C T D 9 9 0 6 7 2 0 8 1 0 2 0 6 5

4. State Manifest Document Number

CWMA 476053

PRATT & WHITNEY (MS 1220 16)

400 MAIN STREET, EAST HARTFORD, CT 06108

4. Generator's Phone

5. Transporter 1 Company Name

565-3435

6. US EPA ID Number

Shelby Truck Leasing Inc

ALD005766404

9. Designated Facility Name and Site Address

10. US EPA ID Number

CHEMICAL WASTE MANAGEMENT, INC.
Emelle Facility
Alabama Highway 17 at Mile Marker 163
Emelle, Alabama 35459

ALD000622464

8. State Facility's ID

9. Facility's Phone

205/652-9721

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers

No.

Type

13. Total Quantity

14. Unit Wt/Vol

15. Waste No.

a. RQ, HAZARDOUS WASTE, SOLID, N.O.S.
CWM-E NA9189 (P001, P007, P009)
CWM Profile Number

J 52286

0101

CM

9,580

P

CWM Profile Number

c. CWM Profile Number

f. CWM Profile Number

16. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Work Order #:

Purchase Order #:

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford

Printed/Typed Name

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name

Signature

Month Day Year



HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address PRATT & WHITNEY (NS 122-16) 400 MAIN STREET, EAST HARTFORD, CT 06108		C T D 9 9 0 6 7 2 0 8 1 0 2 0 6		A. State Manifest Document Number CWMA 476055	
4. Generator's Phone 565-3435		6. US EPA ID Number MD054126164		C. State Generator's ID 116 TTX A19	
5. Transporter 1 Company Name Freehold Cottage Inc		7. US EPA ID Number MD054126164		D. Transporter's Phone 201-462-1001	
9. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT, INC. Emelle Facility Alabama Highway 17 at Mile Marker 163 Emelle, Alabama 35459		10. US EPA ID Number ALD000622464		E. State Transporter's ID F. Transporter's Phone G. State Facility's ID H. Facility's Phone 205/652-9721	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RD, HAZARDOUS WASTE SOLID, N.O.S. ORM-E NA9189 (F001, F007, F009)		001	CH	19440	P
b. CWM Profile Number J 52286					
c. CWM Profile Number					
1. CWM Profile Number					
J. Additional Descriptions for Materials Listed Above STATE OF ORIGIN CONNECTICUT ALABAMA WASTE CODE CWM030590-0055		K. Handling Codes for Wastes Listed Above a. L b. c. d.			
15. Special Handling Instructions and Additional Information Work Order #: 891211061 Purchase Order #:					
16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name WILLIAM A. CHASE		Signature <i>William A. Chase</i>		Month Day Year 12 10 89	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name MICHAEL H. KADINS, Sr		Signature <i>Michael H. Kadins</i>		Month Day Year 12 10 89	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name Tom Lewis					
Signature <i>Tom Lewis</i>		Month Day Year 11 11 89			



HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address PRATT & WHITNEY (DB 122-12) 400 MAIN STREET, EAST HARTFORD, CT. 06108		CTD99067208102068		A. State Manifest Document Number CWMA 476056	
4. Generator's Phone (203) 565-3435		6. US EPA ID Number INTD054V26164		B. State Generator's ID	
5. Transporter 1 Company Name Freehold Cartage Inc		8. US EPA ID Number INTD054V26164		C. State Transporter's ID 291 HACA	
7. Transporter 2 Company Name Freehold Cartage Inc		10. US EPA ID Number		D. Transporter's Phone (203) 463-4091	
9. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT, INC. Emelle Facility Alabama Highway 17 at Mile Marker 163 Emelle, Alabama 35459		A L D 0 0 0 6 2 2 4 6 4		E. State Transporter's ID 291 HACA	
				F. Transporter's Phone (203) 463-4091	
				G. State Facility's ID	
				H. Facility's Phone 205/652-9721	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers	13. Total Quantity	14. Unit Wt/Vol	L. Waste No.
a. PO, HAZARDOUS WASTE SOLID, N.O.S. ORM E NA9189 (F001, F007, F009)		No. 001	Type CH	22020	F001-PO
b. CWM Profile Number		J 52286		P	
c. CWM Profile Number					
CWM Profile Number					
1. Additional Descriptions for Materials Listed Above STATE OF ORIGIN CONNECTICUT ALABAMA WASTE CODE CWM30590-0055		K. Handling Codes for Wastes Listed Above			
		a. L			
		b.			
15. Special Handling Instructions and Additional Information					
Work Order #: 891211061		Purchase Order #:			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.					
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name		Signature		Month Day Year	
H. Transporter 1 Name Freehold Cartage Inc		William J. Leach		1/21/89	
Printed/Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials		William J. Leach		1/21/89	
Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space		William J. Leach		1/21/89	
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed/Typed Name		Signature		Month Day Year	
Dwight Lewis		Dwight Lewis		1/21/89	

APPENDIX J

Copies of Receipts

Profit center: 635

RECEIPT TICKET

Number: 56739

DATE: 12-05-89

SCHEDULED DATE: 12-05-89

TIME IN: 09:01

SCHEDULED TIME:

NSPORTER NAME: SEALAND

09:12 12/05/89 GROSS: 62840 LB

TRUCK NUMBER: 10

TRAILER NUMBER: 075

TARE :

LOAD TYPE: R -ROLL-OFF

13:37 12/06/89 NET : 40100 LB

Rec Work Order Seq Number	Manifest Number	Profile Number	Federal EPA Waste Status	Generator Name	Waste Class
				22,740	

01 891205008-01 0000476051-01 J522860HM CHK RESTRICTION UNITED TECHNOLOGIES S2

COMMENTS:

Approvals: _____ Date: _____ Time: _____

CB Waste: _____ Sampler: _____ Technician: _____

Disposal Method: D81/T45-D81 (Circle One) Disposal Method (Other): _____

Fix Ratio: 1 (Flue Dust) (Waste) Density: _____ (Tanker Only)

Wash Pad Release: _____ Released For Disposal By: _____
(Bulk Only) Signature Signature

Profit center: 698

RECEIPT TICKET

109

Number:

56740

DATE IN:

12-05-89

SCHEDULED DATE:

12-05-89

NA 12/7

TIME IN:

09:09

SCHEDULED TIME:

IMPORTER NAME: SEALAND

09:20 12/05/89 GROSS: 71340 LB

TRUCK NUMBER: 28

TRAILER NUMBER: 0100

TARE :

LOAD TYPE: R -ROLL-OFF

NET

13:42 12/06/89

42680 LB

Rec Work Order

Manifest

Profile

Federal EPA

Generator Name

Wst

Seq Number

Number

Number

Waste Status

28,660

Cl

01 891205008-02 0000476052-01 J522860HM CHK RESTRICTION UNITED TECHNOLOGIES S2

COMMENTS:

~~✓~~ No Adm number

Approvals:

Date:

Time:

CB Waste:

Sampler:

Technician:

Disposal Method:

D81/T45-D81

Disposal Method (Other):

(Circle One)

Mix Ratio:

(Flue Dust)

(Waste)

Density:

(Tanker Only)

Wash Pad Release:

(Bulk Only)

Signature

Released For Disposal By:

Signature

Profile Center 1890

RECEIPT TICKET

Number:

56877

DATE: 12-08-89

TIME IN: 199

08:10

SCHEDULED DATE: 12-05-89

SCHEDULED TIME:

NSPORTER NAME: SUTTLES

08:14 12/06/89 GROSS: 40840 LB

TRUCK NUMBER: 209

TRAILER NUMBER: 8

TARE:

LOAD TYPE: FB -FLAT BEDS

14:54 12/06/89 NET 31460 LB

9,380

Rec Work Order
Seq Number

Manifest
Number

Profile
Number

Federal EPA
Waste Status

Generator Name

Waste
Class

01 891205008-03 0000476053-01 J522860HM CHK RESTRICTION UNITED TECHNOLOGIES S2

300" x 90" x 49"

COMMENTS:

No State of Origin

Approvals:

Date:

Time:

CB Waste:

Sampler:

Technician:

Disposal Method:

D81/T45-D81

Disposal Method (Other):

(Circle One)

Mix Ratio:

(Flue Dust)

(Waste)

Density:

(Tanker Only)

Wash Pad Release:

(Bulk Only)

Signature

Released For Disposal By:

Signature

Profile Center: 895

RECEIPT TICKET

Number: 117

57323

DATE IN: 12-11-89

SCHEDULED DATE: 12-11-89

TIME IN: 04:32
SCHEDULED TIME:

IMPORTER NAME: FREEHOLD

TRUCK NUMBER: 0

TRAILER NUMBER: 24

GROSS: 04:36 12/11/89 62420 LB

12:13 12/11/89 TARE: 43600 LB

LOAD TYPE: R -ROLL-OFF

NET: 18820

Rec Work Order Seq Number	Manifest Number	Profile Number	Federal EPA Waste Status	Generator Name	Wst Cls
------------------------------	--------------------	-------------------	-----------------------------	----------------	------------

01 891211061-02 0000476055-01 J522860HM CHK RESTRICTION UNITED TECHNOLOGIES S2

COMMENTS:

Approvals: _____ Date: _____ Time: _____

PCB Waste: _____ Sampler: _____ Technician: _____

Disposal Method: D81/T45-D81 (Circle One) Disposal Method (Other): _____

Mix Ratio: 1 (Flue Dust) (Waste) Density: _____ (Tanker Only)

Wash Pad Release: _____ Released For Disposal By: _____
(Bulk Only) Signature Signature

PP-113-695

RECEIPT TICKET

113

Number: 57290

DATE IN: 12-11-89
SCHEDULED DATE: 12-11-89

TIME IN: 01:35
SCHEDULED TIME:

DZ

NSPORTER NAME: FREEHOLD

TRUCK NUMBER: 400
TRAILER NUMBER: 405

GROSS: 01:38 12/11/89 60300 LB
TARE :

LOAD TYPE: R -ROLL-OFF

11:23 12/11/89 NET 38420 LB

21,880

Rec Work Order Seq Number	Manifest Number	Profile Number	Federal EPA Waste Status	Generator Name	Waste Class
------------------------------	--------------------	-------------------	-----------------------------	----------------	----------------

01 891211061-01 0000476056-01 J522860HM CHK RESTRICTION UNITED TECHNOLOGIES S2

COMMENTS:

Approvals: _____ Date: _____ Time: _____

PCB Waste: _____ Sampler: _____ Technician: _____

Disposal Method: D81/T45-D81 Disposal Method (Other): _____

(Circle One)

Mix Ratio: _____ Density: _____
(Flue Dust) (Waste) (Tanker Only)

Wash Pad Released: _____ Released For Disposal By: _____
(Bulk Only) Signature Signature

APPENDIX K

Copies of Disposal Certificates



Chemical Waste Management, Inc.

Emelle Facility
P. O. Box 55
Emelle, Alabama 35459
205/652-9721

Pratt & Whitney (MS 122-16)
400 Main St.
East Hartford, CT 06108

EPA ID NUMBER: ALD000622464

CERTIFICATE OF COMPLIANCE AND DISPOSAL

Chemical Waste Management, Inc., has received Waste

material from Pratt & Whitney

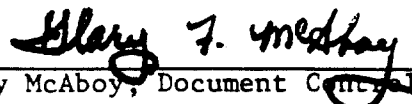
described on Alabama Hazardous Waste Manifest number CWMA

476051. Chemical Waste Management, Inc.,

hereby certifies that Waste material received on

the 5th day of December, 198 ⁹ was

disposed of in compliance with State and Federal regulations.


Glory McAboy, Document Control Supervisor
February 16, 1990



Chemical Waste Management, Inc.

Emelle Facility

P. O. Box 55

Emelle, Alabama 35459

205/652-9721

Pratt & Whitney (MS 122-16)

400 Main St.

East Hartford, CT 06108

EPA ID NUMBER: ALD000622464

CERTIFICATE OF COMPLIANCE AND DISPOSAL

Chemical Waste Management, Inc., has received Waste

material from Pratt & Whitney

described on Alabama Hazardous Waste Manifest number CWMA

476052

Chemical Waste Management, Inc.,

hereby certifies that Waste material received on

the 5th day of December, 198 9 was

disposed of in compliance with State and Federal regulations.

Glory McAboy, Document Control Supervisor
February 16, 1990



Chemical Waste Management, Inc.

Emelle Facility
P. O. Box 55
Emelle, Alabama 35459
205/652-9721

Pratt & Whitney (MS 122-16)
400 Main St.
East Hartford, CT 06108

EPA ID NUMBER: ALD000622464

CERTIFICATE OF COMPLIANCE AND DISPOSAL

Chemical Waste Management, Inc., has received Waste

material from Pratt & Whitney

described on Alabama Hazardous Waste Manifest number CWMA

476053

Chemical Waste Management, Inc.,

hereby certifies that Waste material received on

the 6th day of December, 198 9 was

disposed of in compliance with State and Federal regulations.

Glory F. McAboy

Glory McAboy, Document Control Supervisor
February 16, 1990



Chemical Waste Management, Inc.

Emelle Facility

P. O. Box 55

Emelle, Alabama 35459

205/652-9721

Pratt & Whitney (MS 122-16)

400 Main St.

East Hartford, CT 06108

EPA ID NUMBER: ALD000622464

CERTIFICATE OF COMPLIANCE AND DISPOSAL

Chemical Waste Management, Inc., has received Waste

material from Pratt & Whitney

described on Alabama Hazardous Waste Manifest number CWMA

476055

Chemical Waste Management, Inc.,

hereby certifies that Waste material received on

the 11th day of December, 198 9 was

disposed of in compliance with State and Federal regulations.

Glory F. McAbey

Glory McAbey, Document Control Supervisor
February 16, 1990



Chemical Waste Management, Inc.

Emelle Facility

P. O. Box 55

Emelle, Alabama 35459

205/652-9721

Pratt & Whitney (MS 122-12)

400 Main St.

East Hartford, CT 06108

EPA ID NUMBER: ALD000622464

CERTIFICATE OF COMPLIANCE AND DISPOSAL

Chemical Waste Management, Inc., has received Waste

material from Pratt & Whitney

described on Alabama Hazardous Waste Manifest number CWMA

476056

Chemical Waste Management, Inc.,

hereby certifies that Waste material received on

the 11th day of December, 198 9 was

disposed of in compliance with State and Federal regulations.

Glory T. McAboy

Glory McAboy, Document Control Supervisor
February 16, 1990

APPENDIX L

Sampling Logs

DATE	1	2	0	7	8	9
TIME	1	2	0	6		
PAGE	___ OF ___					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Pratt + Whitney
 SAMPLE NO. J2191
 SAMPLE LOCATION WFL 1 A Blend oil
 SAMPLE TYPE WATER
 COMPOSITE YES X NO
 COMPOSITE TYPE N/A
 DEPTH OF SAMPLE N/A
 WEATHER _____

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS: started flushing at 11:57
 sample collected at 12:06 after about 25 gallons
 had pass thru the line.
 water looked clear.

PREPARED BY: _____

DATE	1	2	0	7	8	9
TIME						
PAGE	OF					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Pratt + Whitney

SAMPLE NO. J 2192 + 2194

SAMPLE LOCATION WFL # 2 A + WFL 4A

SAMPLE TYPE WATER

COMPOSITE YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER _____

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS: started flushing at 12:07
 sample collected at 12:15 after 25 gallons
 had flowed thru lines.
 WFL 4A collected @ 12:18 (DUP)

PREPARED BY: _____

DATE	1	2	0	7	8	9
TIME	1	2	2	8		
PAGE	OF					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Port + Whitney

SAMPLE NO. J 2193

SAMPLE LOCATION WFL 3 A

SAMPLE TYPE WATER

COMPOSITE YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER _____

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS:

started flushing @ 12:20
Sample collected at 12:28 after ~25 gallons
had passed thru line.

PREPARED BY: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

DATE	1	2	0	7	8	9
TIME	1	1	5	0		
PAGE	OF					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Pratt + Whitney

SAMPLE NO. J 2190

SAMPLE LOCATION INFLUENT A

SAMPLE TYPE WATER

COMPOSITE YES X NO

COMPOSITE TYPE _____

DEPTH OF SAMPLE N/A

WEATHER Cold, clear

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS: water was allowed to run for 5 min.
prior to sampling.

PREPARED BY: _____

DATE	1	2	0	7	8	9
TIME						
PAGE	OF					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Pratt + Whitney

SAMPLE NO. _____

SAMPLE LOCATION Ceiling of incinerator building

SAMPLE TYPE WIPE

COMPOSITE YES X NO

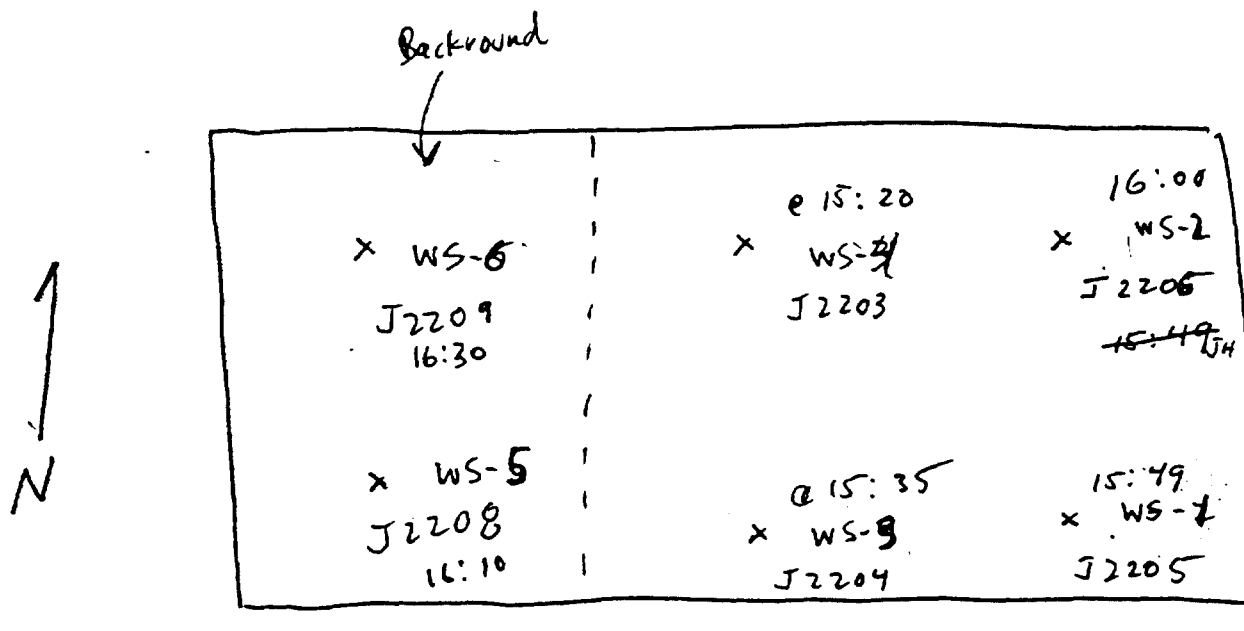
COMPOSITE TYPE _____

DEPTH OF SAMPLE _____

WEATHER _____

CONTAINERS USED	AMOUNT COLLECTED
Boz glass	3 pads

COMMENTS:



J2207
Field Blank
@ 15:40

Travel blank
J2210

PREPARED BY: _____

DATE	1	2	0	7	8	9
TIME						
PAGE	OF					
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME Pratt + Whitney

SAMPLE NO. _____

SAMPLE LOCATION Pit Area for air scrubber.

SAMPLE TYPE concrete chip

COMPOSITE YES X NO

COMPOSITE TYPE NO

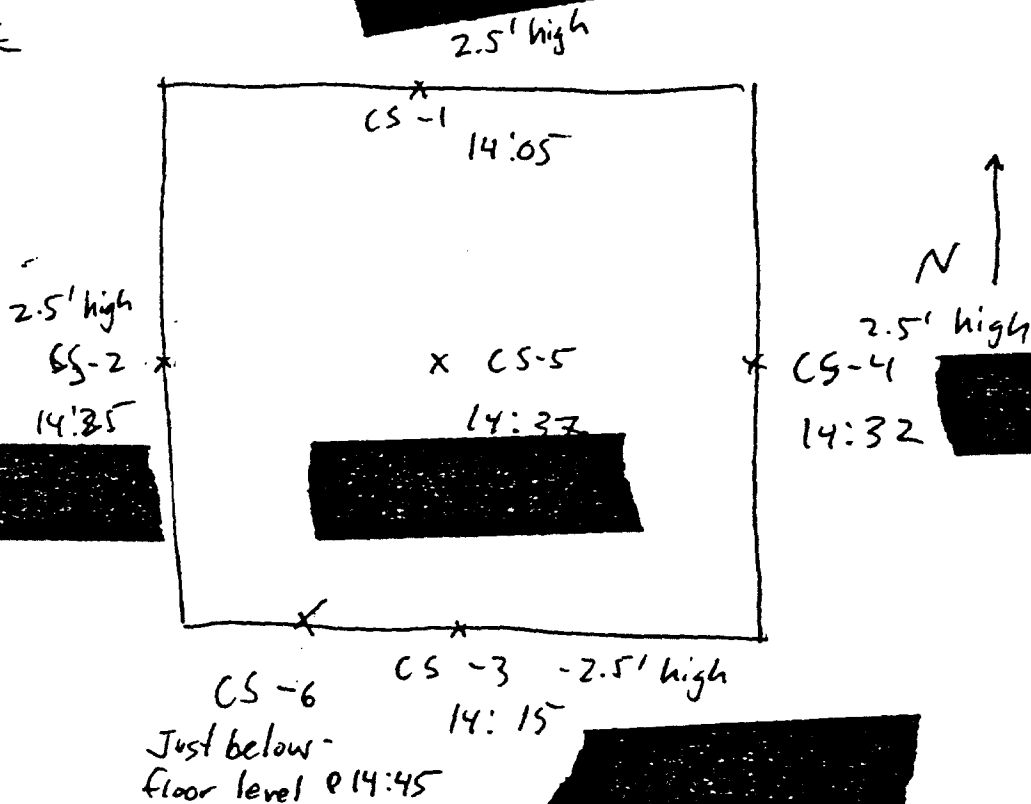
DEPTH OF SAMPLE _____

WEATHER chld, clear

CONTAINERS USED	AMOUNT COLLECTED
8oz glass	~10g.

COMMENTS:

Irrip Blank



PREPARED BY: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 1 306

C/C Control No. 161972

PROJECT NAME/NUMBER

Proth + Whitley

LAB DESTINATION

Arvill Labs

SAMPLE TEAM MEMBERS

Jacques Hill

CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
J2190	Influent A	12-7-89	WATER			
J2191	WFL-1 A	↓	↓	↓		
J2192	WFL-2 A					
J2193	WFL-3 A					
J2194	WFL-4 A					
J2195	Travel Blank					
J2196	CS-1	12-7-89 14:05	Concrete chips	40ml VO vial	8oz glass	
J2197	CS-2	12-7-89 14:25	↓	↓		
J2198	CS-3	14:15				
J2199	CS-4	14:32				

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: _____

Received By: _____

2. Relinquished By: _____

Received By: _____

3. Relinquished By: _____

Received by: _____

4. Relinquished By: _____

Received By: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 307

C/C Control No. 161970

PROJECT NAME/NUMBER Pentl + Whitney

LAB DESTINATION Alexis Lab.

SAMPLE TEAM MEMBERS Jacques Hill / IT

CARRIER/WAYBILL NO. 1

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
J2200	CS-5	12-7-89 14:37	chip	8oz glass		
J2201	CS-6	14:45	chip	8oz glass		
J2202	Imp Blank for chips		WATER	VO VIALS		
J2203	C W#-4	15:20	WIPE	8oz glass		
J2204	C W#-3	15:35				
J2205	C W#-1	15:49				
J2206	C W#-2	16:00				
J2207	WIPE SAMPLE Field Blank	15:40				
J2208	C W#-5	16:10				
J2209	C W#-6	16:30				

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jacques Hill 12/7/89 17:47

3. Relinquished By: _____

Received By: Kevin W. Smith

Received by: _____

2. Relinquished By: _____

4. Relinquished By: _____

Received By: _____

Received By: _____



INTERNATIONAL
TECHNOLOGY
CORPORATION

REQUEST

ANALYSIS

R/A Control No. 1107

C/C Control No. 161170

PROJECT NAME Pruitt + Whitney

PROJECT NUMBER _____

PROJECT MANAGER Scott Singer

BILL TO Pruitt + Whitney

DATE SAMPLES SHIPPED _____

LAB DESTINATION _____

LABORATORY CONTACT _____

SEND LAB REPORT TO _____

12/7/89

Novell Labs

Tamie Palatin

Scott Singer

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____

PROJECT CONTACT _____

PROJECT CONTACT PHONE NO. _____

Scott Singer

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
J2200	whip	8oz	no	VO's, CN, Metals	
J2201	chip	8oz		VO's, CN, Metals	
J2202	WATER	2x40ml		VO's	
J2203	WIPE	3 pads	HNO ₃ , NaOH, MeOH	VO's, CN, Metals	
J2204					
J2205					
J2206					
J2207					
J2208					
J2209					

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____

Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____

Flammable _____

Skin Irritant _____

Highly Toxic _____

Other _____
(Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____

Disposal by Lab _____

FOR LAB USE ONLY

Received By

[Signature]

Date/Time _____

WHITE - Original, to accompany samples

YELLOW - Field copy



INTERNATIONAL
TECHNOLOGY
CORPORATION

REQUEST FOR ANALYSIS

PROJECT NAME Pruett + Whitney
PROJECT NUMBER _____
PROJECT MANAGER Scott Singer
BILL TO Pruett + Whitney
1101 Hartford

DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO _____

R/A Control No. 1 306

C/C Control No. 16, 772

12/7/89

Averill Labs

Scott Singer

PURCHASE ORDER NO. _____

DATE REPORT REQUIRED _____

PROJECT CONTACT _____

PROJECT CONTACT PHONE NO. _____

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
J2190	WATER		as needed	VO's, metals, cyanide	
J2191	↓		↓	↓	
J2192	↓		↓	↓	
J2193	↓		↓	↓	
J2194	↓		↓	↓	
J2195	↓	2x 40ml	NO	VO's	
J2196	concrete chip	302	NO	VO's, metals, cyanide	
J2197	↓	↓	↓	↓	
J2198	↓	↓	↓	↓	
J2199	↓	↓	↓	↓	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____

Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazardous _____

Flammable _____

Skin Irritant _____

Highly Toxic _____

Other _____
(Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____

Disposal by Lab _____

FOR LAB USE ONLY

Received By

James W. Threlk

Date/Time _____

WHITE - Original, to accompany samples

YELLOW - Field copy

APPENDIX M

Raw Analytical Data

AVERILL **ENVIRONMENTAL LABORATORY INC** 100 Northwest Drive Plainville, CT 06062 (203) 747-0676 FAX (203) 747-9264

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: IT Corp.
Jacques Hill

SAMPLE NO.	DESCRIPTION OF SAMPLE
	Rinsate samples collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct., for hazardous waste incinerator closure plan analysis.
289-26-2672	IT Sample No. J2190, Influent A
289-26-2673	IT Sample No. J2191, WFL-1A
289-26-2674	IT Sample No. J2192, WFL-2A
289-26-2675	IT Sample No. J2193, WFL-3A
289-26-2676	IT Sample No. J2194, WFL-4A

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2672	289-26-2673	289-26-2674	289-26-2675	289-26-2676
Arsenic	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Barium	< 0.01	0.01	< 0.01	0.01	< 0.01
Cadmium	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Chromium, Total	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chromium, Hexavalent	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Copper	0.21	0.21	0.10	0.09	0.09
Lead	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Mercury	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nickel	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Selenium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Silver	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cyanide, Total	< 0.005	< 0.005	0.12	< 0.005	0.21
Cyanide, Amenable	-	-	0.08	-	0.18

cc: Pratt & Whitney
Attn: Scott Singer


 The Averill Environmental Laboratory, Inc.

AVERILL ENVIRONMENTAL LABORATORY INC

Lawton S. Averill, Director

100 Northwest Drive
Plainville, CT 06062
(203) 747-0676
FAX (203) 747-9264

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: IT Corp.
Jacques Hill

SAMPLE NO.	DESCRIPTION OF SAMPLE
	Rinsate samples collected and received 12/7/89 from Pratt & Whitney East Hartford, Ct., for hazardous waste incinerator closure plan analysis.
289-26-2672	IT Sample No. J2190, Influent A, analyzed 12/8/89.
289-26-2673	IT Sample No. J2191, WFL-1A, analyzed 12/10/89.
289-26-2674	IT Sample No. J2192, WFL-2A, analyzed 12/8/89.
289-26-2675	IT Sample No. J2193, WFL-3A, analyzed 12/10/89.
289-26-2676	IT Sample No. J2194, WFL-4A, analyzed 12/10/89.

LABORATORY FINDINGS:

(parts per billion, ppb, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2672	289-26-2673	289-26-2674	289-26-2675	289-26-2676
Methylene chloride	ND	58 CB	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	12 CB	22	ND	16 CB
Carbon Tetrachloride	ND	ND	ND	ND	ND
Trichloroethene	ND	122	ND	ND	ND
Tetrachloroethene	ND	48	3400	ND	3700
	ND \leq 5 ppb	ND \leq 5 ppb	ND \leq 10 ppb	ND \leq 5 ppb	ND \leq 10 ppb

CB - The results of the analysis have been corrected for the presence of the compound in the blank.

cc: Pratt & Whitney - Scott Singer

The Averill Environmental Laboratory, Inc.

AVERILL ENVIRONMENTAL LABORATORY INC

100 Northwest Drive
Plainville, CT 06062
(203) 747-0676
FAX (203) 747-9264

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: IT Corp.
Jacques Hill

SAMPLE NO.	DESCRIPTION OF SAMPLE
289-26-2677	Rinsate sample collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct., for hazardous waste incinerator closure plan analysis. IT Sample No. J2195, Travel Blank, analyzed 12/8/89.

LABORATORY FINDINGS:

(Parts per billion, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2677				
Methylene Chloride	ND				
1,1-Dichloroethene	ND				
1,1,1-Trichloroethane	ND				
Carbon Tetrachloride	ND				
Trichloroethene	ND				
Tetrachloroethene	ND				
	ND \leq 1 ppb				

CB - The results of the analysis have been corrected for the presence of the compound in the blank.

AVERILL ENVIRONMENTAL LABORATORY INC

100 Northwest Drive
Plainville, CT 06062
(203) 747-0676
FAX (203) 747-9264

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, CT 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: Jacques Hill, IT Corporation

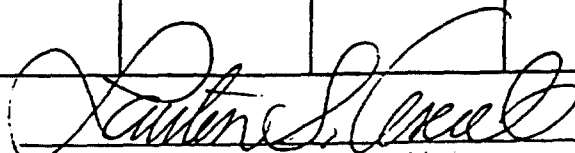
SAMPLE NO.	DESCRIPTION OF SAMPLE
	Wipe samples collected and received 12/7/89 from Pratt & Whitney, East Hartford, CT, for hazardous waste incinerator closure plan analysis.
289-26-2684	IT Sample No. J2203, CW-4
289-26-2685	IT Sample No. J2204, CW-3
289-26-2686	IT Sample No. J2205, CW-1
289-26-2687	IT Sample No. J2206, CW-2
289-26-2688	IT Sample No. J2207, Field Blank

LABORATORY FINDINGS:

Results are in ug/wipe area

ANALYSIS FOR	SAMPLE NO.				
	289-26-2684	289-26-2685	289-26-2686	289-26-2687	289-26-2688
Arsenic	11	12	11	10	9.5
Barium	ALL	OVER	RANGE;	> 14,000	
Cadmium	6.5	7.5	8.0	8.0	9.0
Chromium, Total	3.0	4.0	4.0	4.0	5.0
Copper	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Lead	14	14	19	13	26
Mercury	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Selenium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Silver	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Cyanide, Total	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25

cc: Pratt & Whitney
Att: Scott Singer



100 Northwest Drive
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AVERILL ENVIRONMENTAL LABORATORY INC

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, CT 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: Jacques Hill, IT Corporation

SAMPLE NO.	DESCRIPTION OF SAMPLE
	Wipe samples collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct, for hazardous waste incinerator closure plan analysis.
289-26-2684	IT Sample #J-2203, CW-4
289-26-2685	IT Sample #J-2204, CW-3
289-26-2686	IT Sample #J-2205, CW-1
289-26-2687	IT Sample #J-2206, CW-2
289-26-2688	IT Sample #J-2207, Field Blank

LABORATORY FINDINGS:

Results are in ug per Wipe Area

ANALYSIS FOR	SAMPLE NO.				
	289-26-2684	289-26-2685	289-26-2686	289-26-2687	289-26-2688
Methylene Chloride	ND	ND	ND	ND	0.49
1,1-Dichloroethene	ND	ND	ND	0.14	ND
1,1,1-Trichloroethane	0.13	0.76	0.57	0.53	0.66
Carbon Tetrachloride	ND	ND	ND	ND	ND
Trichloroethene	ND	ND 0.005	ND	ND	ND
Tetrachloroethene	0.40	0.96	0.29	0.55	0.21
ND < 0.05					

cc: Pratt & Whitney
Att: Scott Singer



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REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, CT 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: Jacques Hill, IT Corporation

SAMPLE NO.	DESCRIPTION OF SAMPLE
289-26-2689	Wipe samples collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct, for hazardous waste incinerator closure plan analysis.
289-26-2690	IT Sample No. J2208, CW-5 IT Sample No. J2209, CW-6

LABORATORY FINDINGS:

Results are in ug/wipe area

ANALYSIS FOR	SAMPLE NO.				
	289-26-2689	289-26-2690			
Arsenic	9.5	9.5			
Barium	ALL OVER RANGE; > 14,000				
Cadmium	7.5	8.0			
Chromium, Total	4.5	3.5			
Copper	< 2.5	< 2.5			
Lead	10	11			
Mercury	< 0.05	< 0.05			
Nickel	< 5.0	< 5.0			
Selenium	< 0.50	< 0.50			
Silver	< 2.5	< 2.5			
Cyanide, Total	< 0.25	< 0.25			

cc: Pratt & Whitney
Att: Scott Singer


The Averill Environmental Laboratory, Inc.

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AVERILL ENVIRONMENTAL LABORATORY INC

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, CT 06108

Date: December 18, 1989

SAMPLE DATA:

Collected By: Jacques Hill, IT Corp.

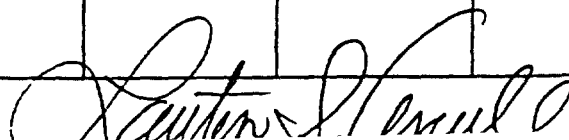
SAMPLE NO.	DESCRIPTION OF SAMPLE
	Concrete chip samples collected and received 12-7-89 from Pratt & Whitney, East Hartford, CT for hazardous waste incinerator closure plan analysis.
289-26-2678	IT Sample No. J 2196, CS-1
289-26-2679	IT Sample No. J 2197, CS-2
289-26-2680	IT Sample No. J 2198, CS-3
289-26-2681	IT Sample No. J 2199, CS-4
289-26-2682	IT Sample No. J 2200, CS-5

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2678	289-26-2689	289-26-2680	289-26-2681	289-26-2682
pH, 10% Slurry	10.6	11.2	10.9	10.8	11.7
Total Solids, percent	98.6	98.1	98.0	98.3	97.0
Tests are mg/kg, (ppm), based on Dry Weight					
Arsenic	5.5	6.7	7.5	6.0	7.3
Barium	47	23	40	5.0	45
Cadmium	4.7	< 1.3	< 1.5	< 1.3	< 1.5
Chromium, Total	15	9.3	49	3.4	640
Chromium, Hexavalent	< 0.059	0.065	0.23	0.13	0.033
Copper	9.9	13	30	9.7	74
Lead	< 2.1	< 2.1	3.0	< 2.1	9.8
Mercury	0.043	0.042	0.049	0.042	0.049
Nickel	19	8.9	54	< 4.2	400
Selenium	< 0.47	< 0.45	< 0.47	< 0.51	< 0.41
Silver	< 2.2	< 2.2	< 2.0	< 2.3	3.4
Cyanide, Total	< 0.48	< 0.49	< 0.48	< 0.51	< 0.49
Cyanide, Amenable	-	-	-	-	-

cc: Pratt & Whitney
Att: Scott Singer



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CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By:

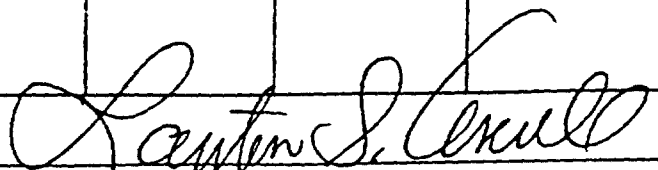
SAMPLE NO.	DESCRIPTION OF SAMPLE
	Concrete sample collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct., for hazardous waste incinerator closure plan analysis.
289-26-2678	IT Sample #CS-1
289-26-2679	IT Sample #CS-2
289-26-2680	IT Sample #CS-3
289-26-2681	IT Sample #CS-4
289-26-2682	IT Sample #CS-5
	DATE ANALYZED: 12/12/89

LABORATORY FINDINGS:

Parts per billion, ppb
ND \leq 2.5 ppb

ANALYSIS FOR	SAMPLE NO.				
	289-26-2678	289-26-2679	289-26-2680	289-26-2681	289-26-2682
Methylene Chloride	5.4	7.4	1.8	4.7	8.8
1,1-Dichloroethene	2.1	4.8	6.4	6.8	ND
1,1,1-Trichloroethane	22	96	130	31	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND
Trichloroethene	2.1	ND	ND	ND	ND
Tetrachloroethene	280	460	530	310	17

cc: Pratt & Whitney
Attn: Scott Singer


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Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: IT Corp.
Jacques Hill

SAMPLE NO.	DESCRIPTION OF SAMPLE
	Concrete chip samples collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct., for hazardous waste incinerator closure plan analysis.
289-26-2678E	IT Sample No. J2196, CS-1 *EP Toxicity Elutriation
289-26-2679E	IT Sample No. J2197, CS-2 *EP Toxicity Elutriation
289-26-2680E	IT Sample No. J2198, CS-3 *EP Toxicity Elutriation
289-26-2681E	IT Sample No. J2199, CS-4 *EP Toxicity Elutriation
289-26-2682E	IT Sample No. J2200, CS-5 *EP Toxicity Elutriation

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2678E	289-26-2679E	289-26-2680E	289-26-2681E	289-26-2682E
ml. 0.5N acetic acid	400	400	400	400	400
pH of filtrate	4.8	4.8	4.8	4.8	4.8
<u>Tests are mg/l in filtrate</u>					
Arsenic	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Barium	0.30	0.16	0.26	0.22	0.31
Cadmium	< 0.03	< 0.03	0.04	< 0.03	< 0.03
Chromium, Total	0.06	0.06	0.07	0.06	< 0.05
Lead	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Mercury	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Selenium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Silver	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
<p>*EP Toxicity Elutriation: 100 grams of sample mixed with the designated amount of 0.5N acetic acid, diluted to 2000 ml. with distilled water, mixed for 24 hours, settled and filtered through 0.45 micron filter paper. Filtrate was tested.</p>					

cc: Pratt & Whitney
Attn: Scott Singer

Lawton S. Averill

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Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, CT 06108

Date: December 18, 1989

SAMPLE DATA:

Collected By: Jacques Hill, IT Corp.

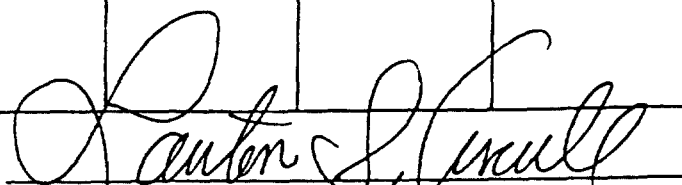
SAMPLE NO.	DESCRIPTION OF SAMPLE
289-26-2683	Concrete chip samples collected and received 12-7-89 from Pratt & Whitney, East Hartford, CT for hazardous waste incinerator closure plan analysis. IT Sample No. J 2201, CS-6

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2683				
pH, 10% Slurry	11.1				
Total Solids, percent	99.1				
Tests are mg/kg, (ppm), based on Dry Weight					
Arsenic	8.6				
Barium	19				
Cadmium	< 1.5				
Chromium, Total	3.4				
Chromium, Hexavalent	0.12				
Copper	10				
Lead	4.4				
Mercury	< 0.049				
Nickel	< 4.9				
Selenium	< 0.49				
Silver	< 2.4				
Cyanide, Total	< 0.50				
Cyanide, Amenable	-				

cc: Pratt & Whitney
Att: Scott Singer



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CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By:

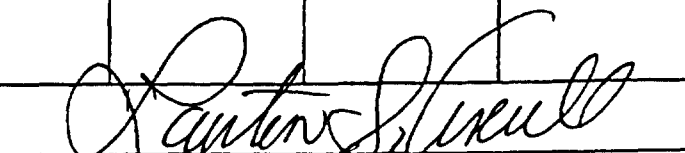
SAMPLE NO.	DESCRIPTION OF SAMPLE
289-26-2683	Concrete sample collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct., for hazardous waste incinerator closure plan analysis. IT Sample #CS-6 DATE ANALYZED: 12/12/89

LABORATORY FINDINGS:

parts per billion, ppb
ND \angle 2.5 ppb

ANALYSIS FOR	SAMPLE NO.				
	289-26-2683				
Methylene Chloride	5.2				
1,1-Dichloroethene	ND				
1,1,1-Trichloroethane	18				
Carbon Tetrachloride	ND				
Trichloroethene	ND				
Tetrachloroethene	300				

cc: Pratt & Whitney
Attn: Scott Singer



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AVERILL ENVIRONMENTAL LABORATORY INC

Lawton S. Averill, Director

CT Public Health Lab No. PH-0513

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney
East Hartford, Ct. 06108

Date: December 15, 1989

SAMPLE DATA:

Collected By: IT Corp.
Jacques Hill

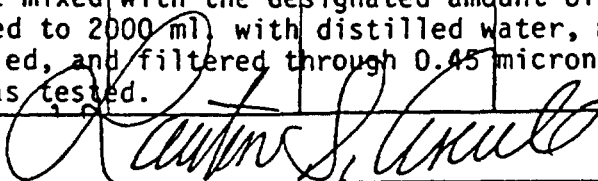
SAMPLE NO.	DESCRIPTION OF SAMPLE
289-26-2683 (E)	Concrete chip sample collected and received 12/7/89 from Pratt & Whitney, East Hartford, Ct. for hazardous waste incinerator closure plan analysis. IT Sample No. J2201, CS-6 *EP Toxicity Elutriation

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-26-2683E				
ml. 0.5N acetic acid	400				
pH of filtrate	4.8				
<u>Tests are mg/l in filtrate</u>					
Arsenic	< 0.01				
Barium	0.21				
Cadmium	< 0.03				
Chromium, total	0.05				
Lead	< 0.05				
Mercury	< 0.001				
Selenium	< 0.01				
Silver	< 0.05				
 *EP Toxicity Elutriation: 100 grams of sample mixed with the designated amount of 0.5N acetic acid, diluted to 2000 ml, with distilled water, mixed for 24 hours, settled, and filtered through 0.45 micron filter paper. Filtrate was tested.					

cc: Pratt & Whitney
Attn: Scott Singer



APPENDIX N
Validation Report

**QA/QC REVIEW OF AVERILL ENVIRONMENTAL LABORATORY
DATA FOR WASTE FEED LINE RESULTS (ROUND II)**

METALS

Holding Times: Samples were prepared and analyzed within 40 CFR 136 holding times.

Initial and Continuing Calibration Verification: Arsenic (82%) had a percent recovery outside control limits (90-110%). Arsenic results should be considered estimates.

Blanks: Calibration and preparation blanks contained traces of chromium (0.01 mg/L), copper (0.003 mg/L), lead (0.02 mg/L) and zinc (0.003 mg/L). Results for these metals less than five times the blank level should not be reported.

Duplicates: All duplicate analyses were within control limits.

Spike Sample Recovery: All percent recoveries were within control limits.

VOLATILES BY 8010

Holding Times: Samples were analyzed within 40 CFR 136 holding times.

Initial Calibration: All percent relative standard deviation (% RSD's) were within control limits (less than 20%).

Continuing Calibration: All percent differences (% D's) were within control limits (less than 15%).

Blanks: The trip blank (travel blank) reported all target compounds as non-detected. Method blanks Run #800 (4.7 µg/L) and Run #808 (0.51 µg/L) contained 1,1,1-trichloroethane. No results less than five times the blank level should be reported in associated samples.

Surrogate Recoveries: Percent recoveries were within control limits established by Method 8010, SW-846.

Matrix Spike and Duplicate: Relative percent differences and percent recoveries were all within control limits.

**QA/QC REVIEW OF AVERILL ENVIRONMENTAL
LABORATORY DATA FOR CEILING WIPE SAMPLE RESULTS**

METALS

Holding Times: All samples were prepared and analyzed within the required holding times.

Initial and Continuing Calibration Verification: Arsenic (82%) had a percent recovery outside control limits. Results for arsenic should be considered estimates.

Blanks: Calibration and preparation blanks contained traces of chromium (0.01 mg/L), copper (0.003 mg/L), lead (0.02 mg/L), and zinc (0.003 mg/L). The field blank contained traces of arsenic (9.5 µg/100 cm²). The filter blank contained traces of cadmium (3.5 µg/100 cm²), lead (10 µg/100 cm²), and arsenic (9.2 µg/100 cm²). Results for chromium (25 µg/100 cm²), arsenic (47.5 µg/100 cm²), cadmium (45 µg/100 cm²), and lead (130 µg/100 cm²), below these levels, should be rejected. Also, all results for barium should be rejected.

VOLATILES BY 8010

Holding Times: All samples were analyzed within the required holding times.

Initial Calibration: All percent relative standard deviations (% RSD's) were within control limits (less than 20%).

Continuing Calibration: 1,1,1-Trichloroethane (12/12/89--day sample), methylene chloride (12/12/89--night sample), and 1,1,1-trichloroethane (12/13/89--day sample) each had percent differences greater than 15%. Results for these compounds in associated samples should be considered estimates.

Blanks: The field blank contained traces of methylene chloride (0.49 µg/100 cm²), 1,1,1-trichloroethane (0.66 µg/100 cm²), and tetrachloroethene (0.21 µg/100 cm²). The wipe blanks reported all target compounds as non-detect. Results for methylene chloride (4.9 µg/100 cm²), 1,1,1-trichloroethane (3.3 µg/100 cm²), and tetrachloroethene (1.05 µg/100 cm²), below these levels, should be rejected.

Surrogate Recoveries: Samples CW-4 and CW-5 had one of three percent recoveries outside control limits. No action will be taken for just one out.

Matrix Spike and Duplicate: All percent recoveries were within control limits. Two out of six relative percent differences were outside control limits. No action is taken.

**QA/QC REVIEW OF AVERILL ENVIRONMENTAL LABORATORY
DATA FOR CONCRETE CHIP SAMPLE RESULTS**

METALS

Holding Times: Samples were analyzed and prepared within appropriate holding times.

Initial and Continuing Calibration Verification: Arsenic (82%) had a percent recovery outside control limits. Arsenic results should be considered estimates.

Blanks: The lab blank and method blank reported all target compounds as non-detect. Calibration and preparation blanks contained traces of chromium (0.01 mg/L), copper (0.003 mg/L), lead (0.02 mg/L) and zinc (0.003 mg/L). Results less than five times the blank level should not be reported in associated samples.

Duplicates: Chromium (39%) for total metal analyses had a relative percent deviation (RPD) outside control limits (0-35%). Results for chromium in total metals analyses should be considered estimates.

Spike Sample Recovery: No spike samples were analyzed.

VOLATILES BY 8010

Holding Times: Samples were analyzed within the appropriate holding times.

Initial Calibration: All percent relative standard deviations (% RSD's) were within control limits (less than 20%).

Continuing Calibration: All percent differences (% D's) were within control limits (less than 15%).

Blank: The method blank reported all target compounds as non-detected.

Surrogate Recoveries: IT sample numbers CS-1 and CS-4 had one of three surrogate recoveries outside control limits. No action will be taken on one of three surrogates outside control limits.

Matrix Spike and Duplicate: One of three percent recoveries and one of six relative percent differences were outside control limits. This data in conjunction with surrogate data, indicate a matrix interference, but is not critical in higher concentrations of analyte.

RCRA Part B Permit Application
United Technologies
Pratt & Whitney
CTD 990672081

Page 123 of 125
November 12, 1990

APPENDIX H-3
CLOSURE PLAN FOR THE
WAX/SOLVENT STORAGE TANK

RCRA CLOSURE PLAN
FOR
WAX/SOLVENT STORAGE TANK
RESOURCE CONSERVATION AND RECOVERY ACT
CONCENTRATED WASTE TREATMENT PLANT

November 1990

Prepared for:

United Technologies Corporations
Pratt & Whitney
400 Main Street
East Hartford, Connecticut
EPA ID # CTD990672081

Prepared by:

Loureiro Engineering Associates
100 Northwest Drive
Plainville, CT 06062

Comm. No. 971-10

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ACRONYMS

CTDEP: Connecticut Department of Environmental Protection
CWTP: Concentrated Waste Treatment Plant
EPA: U.S. Environmental Protection Agency
MCL: Maximum Containment Level
P&W: Pratt & Whitney
QA/QC: Quality Analysis/Quality Control
RCRA: Resource Conservation and Recovery Act
TCLP: Toxicity Characteristic Leaching Procedure
TSDF: Treatment Storage Disposal Facility

A. INTRODUCTION

This Closure Plan is provided for the wax/solvent storage tank located at the Concentrated Waste Treatment Plant of United Technologies - Pratt & Whitney East Hartford facility, EPA ID NO. CT D 990672081. Closure of this unit will be conducted in accordance with all applicable RCRA regulations, and will:

- 1) Minimize the need for further maintenance, and;
- 2) Control, minimize or eliminate to the extent necessary to protect human health and the environment, the post closure escape of hazardous waste, hazardous constituents, leachate, or contaminated run-off to the groundwater, surface water or the atmosphere.

In subsequent sections, this closure plan provides a description of methods to be applied and precautions to be taken in closing the wax/solvent tank. Specific closure activities are described in detail and a trackable closure schedule and cost estimate are provided.

Upon completion of closure, P&W will submit a certification by both P&W and an independent registered professional engineer to the Regional Administrator and the DEP Commissioner that the facility has been closed in accordance with the specifications in the approved closure plan. The closure certification will include all other pertinent analytical data as well as the following:

- Photographic records of the closure documenting each construction step of the closure process
- Contractors daily log

P&W - EH
RCRA CLOSURE PLAN
WAX/SOLVENT STOR. TANK
NOV. 1990 REV. NO.: 0

- A list of any departure from the approved plan with rationales in accordance with 40 CFR 264.112(c).

In subsequent sections, this Closure Plan provides a detailed description of specific procedures to be followed and precautions to be taken in closing the wax/solvent storage tank.

B. FACILITY DESCRIPTION

P&W East Hartford generates a variety of hazardous wastes and receives wastes from P&W satellite plants located in Connecticut, Maine and New York. Currently these wastes are managed in eleven (11) storage tanks (8 above ground and 3 underground) and five (5) container storage areas all located within an area known as the Concentrated Waste Treatment Plant (CWTP). These operations are located in an area near the northern end of the East Hartford plant complex.

Pratt & Whitney is planning to upgrade these facilities. Design work is in progress and construction is planned for 1991. Waste generated on-site are also managed at other locations within the facility in containers and tanks for less than ninety (90) days.

The wax/solvent tank was once used for hazardous waste accumulation and storage and had the capability to feed directly to an incinerator. The incinerator has been removed and the wax/solvent tank has become obsolete and will therefore be closed.

C. WAX/SOLVENT TANK DESCRIPTION

The wax/solvent storage tank is located in the CWTP, in the same building as the former Burn-Zol incinerator, which is also presently being closed under a closure plan approved by the CTDEP and EPA. The tank was used to store wax/solvent sludges which accumulated at the bottom of a still where used solvents, such as 1,1,1-trichloroethane and perchloroethylene, were distilled for reuse. The tank was used only for storage of the wax/solvent mixture. It was heated to avoid precipitation of the wax from the mixture. The tank had a closed top to minimize solvent evaporation and an air duct to vent the tank. The tank was located in a pit, which served as a secondary containment.

An above ground wax/solvent feed line used to connect the wax/solvent tank directly to the incinerator located in the same building. The wax/solvent feed line leading to the incinerator was actually used on four separate occasions, each involving trial test burns of the wax/solvent waste stream in the incinerator. These tests were performed on 3-31-82, 12-14-82, 12-13-83, and 5-30-84. Each of these tests indicated deficiencies related to the operation of the incinerator and inadequate scrubber performance. A decision was made in the first quarter of 1985 to postpone plans for additional trial burns, and subsequently, to abandon the incinerator permitting process and consider closure alternatives. As

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RCRA CLOSURE PLAN
WAX/SOLVENT STOR. TANK
NOV. 1990 REV. NO.: 0

already mentioned previously, the incinerator components, and wax/solvent feed line attached to the incinerator, have been removed and the incinerator area is being closed as part of a CTDEP and EPA approved closure plan.

D. GENERAL CLOSURE REQUIREMENTS

a. General

This section presents the general closure requirements pertaining to closure of the wax/solvent storage tank. A detailed description of the specific activities to be followed during closure is given in the following section (Section E). It is expected that at the time of closure, the tank will contain insignificant amounts of hazardous waste. Closure will be completed within 180 days of the starting date.

Closure activities will involve removal of any hazardous waste remaining in the tank; dismantling and disposal of tank and ancillary equipment; decontamination of the containment pit; confirmatory sampling and analysis; and data evaluation and closure certification by a licensed professional engineer. Specific procedures for sample analysis and data evaluation are provided in Section F of this plan while a closure cost estimate is presented in Section G.

b. Closure Requirements

1. Health and Safety - The decontamination crew will consist of a minimum of two individuals who will be adequately clothed, including self-contained breathing apparatus, if required, and coveralls. Supervision of the decontamination process will include the individual(s) responsible for operation of the TSDF.

The primary basis for the level of personnel protection selected is determined by:

- The type, toxicity, measured concentration, and permissible exposure limits of the chemical substances.

- The potential or measured exposure to substances in the air, splashes of liquids, or other direct contact with materials due to the work being performed.

The personnel protective equipment used to protect the body against chemical hazards is divided into four categories according to the degree of protection:

- Level A - Will be worn when the highest level of respiratory, skin, and eye protection is needed.
- Level B - Will be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is needed.
- Level C - Will be worn when the types of airborne substances are known, the concentrations have been measured, and the criteria for using air-purifying respirators are met.
- Level D - This level is used where no respiratory or skin hazards are present. Level D protection is primarily a work uniform providing minimal protection

It is not anticipated that personnel will need to use Levels A or B.

2. Sudden or Non-Sudden Release, or Fire Hazard - The decontamination process will be considered as an activity presenting a high risk potential for release of hazardous waste or fire/explosion hazard. As such, the appropriate mechanisms of the Contingency Plan will be ready for activation.

3. Timetable - Completion of closure will be within 180 days of agency approval of the closure plan. The schedule for closure including milestone dates follows:

<u>DAY</u>	<u>ACTIVITY</u>
0	EPA and CTDEP approved closure plan.
90	All hazardous wastes disposed of off-site at permitted facilities. Tank and appurtenances removed and disposed of off-site at permitted facilities.
100	Inspection for residual wastes completed and all damaged areas identified. Samples collected from damaged areas and analyzed appropriately.
120	Floors and equipment cleaned and rinsed. Confirmatory chip samples taken of the concrete containments.
150	Floor and piping repaired and/or sealed as necessary for further use.
180	Completion of closure.

All final closure activities will be supervised and certified by an independent registered professional engineer, in addition to P&W personnel.

P&W may require an extension for closure time depending on the season that closure begins.

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4. Certification - The following certification should be submitted to the EPA Region I Administrator and the Commissioner of CT DEP upon completion of closure:

"I, _____, for Pratt & Whitney, United Technologies
(Name)
Corporation, owner and operator of _____,
(Site)
a hazardous waste storage area and I, _____, P.E.,
(Name)
employed by _____, certify by means of our
(Firm)
signatures, that the facility named above has been closed in accordance
with the method specified by the Closure Plan, and attached hereto.
Closure was completed on _____, after receiving the final
(Date)
volume of material on _____".
(Date)

E. DESCRIPTION OF CLOSURE ACTIVITIES

This section describes in detail the specific procedures to be applied and precautions to be taken in closing the wax/solvent storage tank. The hazardous waste inventory expected to be present in the tank at the time of closure is minimal, limited to wax residues on the side of the tank.

The wax/solvent tank closure process concerns only the tank, associated waste feed or vent lines, and the containment pit and immediate adjacent area potentially contacted by tank operations. The following detailed procedures describe the work.

1. A Health and Safety Plan, specific to the wax/solvent storage tank will be prepared to cover the closure activities to be performed.
2. Any wax residues remaining on the sides, top and bottom of the tank, on the tank components, and on the containment pit will be removed to the maximum extent possible, by brushing, cleaning and scraping. The resulting accumulation of waste residue along with any contaminated disposable clothing will be drummed and treated as hazardous waste. Any tools used during residue removal will be decontaminated using an industrial grade non-phosphate detergent and water solution with a plant tap water rinse. All rinsate will be collected and treated as a hazardous waste liquid at the CWTP.

3. Once all hazardous waste inventory has been removed (to the extent possible), the tank, tank accessories and above ground air ducts and piping will be dismantled and disposed of as hazardous waste via a licensed waste hauler to a permitted TSDF. Disassembly will consist of manual dismantling and/or the use of powered equipment. Both hot or cold cutting techniques may be used. The size of stockpiled components will be directly influenced by the disposal facilities requirements for landfilling. It is anticipated that all piping will be cut into four foot sections and that larger components will not exceed 10 feet in any dimension.
4. After removal of the tank components, the concrete pit which used to serve as a secondary containment for the tank will be shotblasted or scarified. The potential for fugitive dust emissions will be minimized by utilizing equipment which immediately contains all generated residue. This residue will be collected, stored and treated as hazardous waste.
5. The containment area will subsequently be scrubbed with either a solution containing 5 percent sodium carbonate and 5 percent trisodium phosphate or simply a 5 percent solution of trisodium phosphate. The area will then be thoroughly rinsed with water. Spent decontamination solutions or rinsewaters will be collected in existing sumps or will be contained through the use of dikes

to prevent wash water migrating into clean areas. This rinsate will be collected using a wet/dry vacuum then stored and treated as a hazardous waste.

6. All equipment used in closure activities will either be decontaminated or collected and disposed of as hazardous waste. Small manual tools will be decontaminated using an industrial grade non-phosphate detergent and water solution. Equipment used during decontamination, such as brushes, gloves, disposable suits, etc., will be collected in a 55-gallon drum and disposed of as hazardous waste using licensed transporters and permitted disposal facilities. Portions of larger tools (i.e. lifts, hoists) which have come in contact with the waste will be decontaminated by steam cleaning. All rinsate generated during decontamination activities will be collected and treated as hazardous waste.
7. Once decontamination has been completed as described above, the wax/solvent storage area will be inspected for cracks or other visible signs of deterioration. If cracks or signs of deterioration are observed then the sampling plan presented below will be modified to include a representative portion of these areas.
9. If no cracks, or visible signs of deterioration are found, then non-statistical "judgement sampling" of potentially contaminated areas based on visual observations, is not possible. Instead, verification sampling will be performed according to the following procedure:

The containment area after decontamination will be gridded and sampled at locations corresponding to randomly selected grid nodes. The area to be gridded includes the floor of the containment pit, which will represent worst case conditions, and the area immediately adjacent to the tank pit inside the building, that could potentially have been affected by the tank operations (Refer to Figure 1). The size of the grid interval is determined by this generally accepted mathematical formula:

$$GI = (A/3.14)^{0.5}/2, \text{ where:}$$

GI = grid interval, ft

A = area to be gridded, sq. ft.

The calculated value for the grid interval is then rounded off to the nearest integer and the area is gridded.

The number of samples (n) to be obtained from each slab is determined by the square root of the number of grid nodes.

A random number table or generator is typically used to determine which grid nodes or grid areas will be sampled.

Table 1 outlines the calculations of the number of verification samples required to be collected from the wax/solvent storage tank area to generate statistically viable data.

The number of grid samples shown in Table 1 is the number of samples statistically required. A random number table procedure

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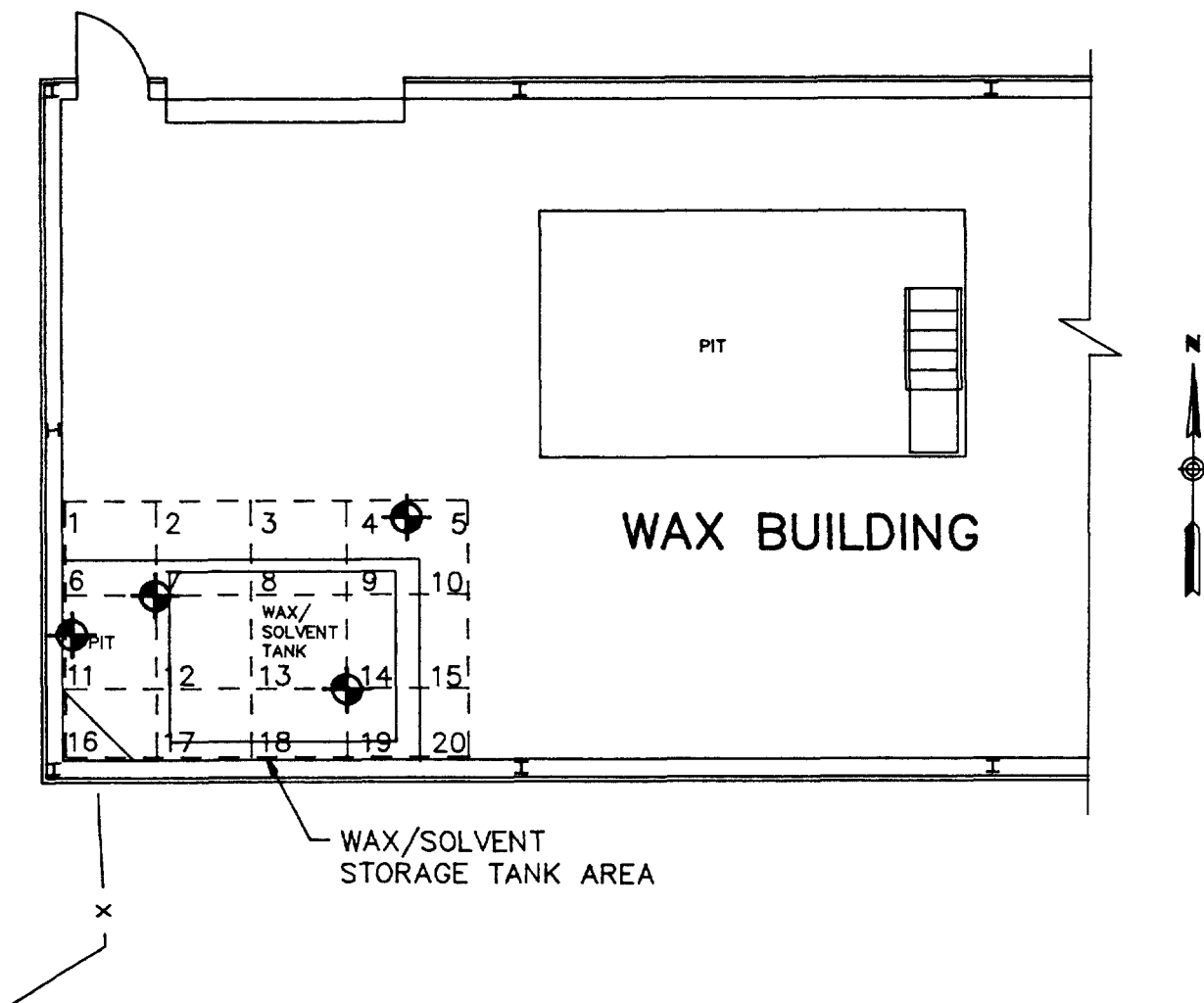
was used to calculate the exact location of these samples, which are shown in Figure 1. In addition to these samples, a representative number of samples will be collected from obviously contaminated spots, cracks or other areas that show signs of severe deterioration. These samples, if any, will be in addition to those shown in Figure 1.

All samples will consist of concrete chip samples collected with an air chisel or similar tool. The portion of the tool in direct contact with the concrete will be cleaned between samples using an industrial non-phosphate detergent wash and a tap water rinse. The resulting concrete chips will be transferred directly into laboratory supplied glassware. The field QA/QC program for concrete chip samples will consist of one field duplicate and one trip blank to accompany the samples to the laboratory. Immediately following sample collection each sample will be labeled and placed in an iced cooler. The samples will be transported under full chain-of-custody to a State of Connecticut approved laboratory.

The analytical testing and determination procedures are presented in Section C of the Closure Plan.

If based on an evaluation of the analytical data (comparison to available background levels and to health/risk based levels) the decontamination effects are deemed incomplete, the decontamination will be repeated until follow-up sampling demonstrates that parameters are at or below health/risk standards or are consistent with background levels. Any

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LEGEND



CONCRETE SAMPLING LOCATION

LEA LOUREIRO ENGINEERING ASSOCIATES
 CONSULTING ENGINEERS PLAINVILLE, CT

RCRA PART B PERMIT APPLICATION SAMPLING LOCATIONS

FIGURE 1

COMM. NO. 971-10

CRD. BY JJL	APP. BY JL	SCALE 1/8" = 1'-0"	DATE 11/12/90
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concrete chip sampling areas which exhibit levels consistent with background and either above or below health/risk levels will be considered representative of ambient background levels thus decontamination efforts will be deemed complete.

9. The certification of closure will be completed as discussed in Section B(b)(4) of this Closure Plan. Within 60 days of completion of all closure activities, the Certification of Closure will be sent by registered mail to the EPA Regional Administrator and the Commissioner of the Connecticut Department of Environmental Protection.

F. ANALYSIS AND DATA EVALUATION

This section presents the analytical methods and QA/QC procedures to be followed during sample analysis. Data evaluation will be based on a comparison of the data collected with background levels and/or health/risk based standards.

a. Analytical Parameters

A specific analytical parameter list has been developed for concrete chip samples collected during closure of the wax/solvent storage tank. The list, presented in Table 2, is representative of all listed hazardous waste constituents present in the wax/solvent mixture, the only waste stream stored in the wax/solvent storage tank. In addition to the constituents listed in Table 2, the characteristics hazardous waste parameters of corrosivity and TCLP (metals only) have been deemed applicable and are therefore included. The aforementioned parameters were taken from the approved closure plan for the incinerator as both units handled the same waste stream with the exception of cyanide wastes which were not placed in the wax/solvent tank.

The analytical methods presented in Table 2 have been selected from the third edition of EPA's Publication SW-846 - "Test Methods for Evaluating Solid Waste". The designated laboratory will follow all applicable internal QA/QC procedures outlined in SW-846.

TABLE 2
SPECIFIC LIST OF ANALYTICAL PARAMETERS

<u>Analytical Parameters</u>	<u>Solid Mass Analysis</u> (Concrete Chip Samples)
<u>Metals</u>	
Arsenic	3050/7060
Barium	3050/6010
Cadmium	3050/6010
Chromium (Total)	3050/6010
Chromium VI	—/7196
Copper	3050/6010
Lead	3050/6010
Mercury	3050/7471
Nickel	3050/6010
Selenium	3050/7740
Silver	3050/6010
<u>Volatile Organic Compounds</u>	
Carbon Tetrachloride	5030/8010
1,1,-Dichloroethylene	5030/8010
Methylene Chloride	5030/8010
Tetrachloroethylene	5030/8010
1,1,1-Trichloroethane	5030/8010
Trichloroethylene	5030/8010

Notation

*5030/8010 - preparation method/analytical method

b. Data Validation

Upon receipt of the analytical data, an initial evaluation of the results will be performed through data validation. Data validation includes a review of field QA/QC procedures (i.e. trip blanks, field duplicates) and laboratory QA/QC procedures (i.e. holding times, blind duplicate analysis, surrogate recoveries). Data points that are not adequately supported by the QA/QC procedures will be referred to the sampling team and/or the laboratory for appropriate corrective actions.

Upon completion of data validation, the results will be compared to background data points and the relevant and appropriate regulatory standards and criteria. An explanation of how this will be performed for each sample media (aqueous or solid) is presented below.

c. Data Evaluation

As previously stated, decontamination of the wax/solvent storage tank will be demonstrated complete by concrete chip sampling and comparison to regulatory and/or background levels.

Analytical data will be generated for the concrete on a mass analysis basis for all the parameters listed in Table 2. The hazardous waste characteristic of toxicity will be determined by performing the TCLP test for selected metals (arsenic, barium, cadmium, chromium (T), lead, mercury, selenium, silver).

The background levels to be used in data evaluation will be identical to the ones established recently during closure of the Burn-Zol incinerator. The incinerator was located in the same building as the wax/solvent storage tank and valid background data has already been generated.

Analytical results on concrete chip samples for TCLP metals will be compared to the regulatory levels specified in 40 CFR 261.3. If any parameter exceeds the applicable regulatory level then decontamination will be deemed incomplete in the area of that sample. If this circumstance occurs for any of the concrete chip samples collected, decontamination efforts will continue until follow-up sample data achieves the applicable target standard.

In addition to the evaluation on the basis of TCLP (characteristic of toxicity), data evaluation against health/risk based standards will be performed for the contaminants detected. This evaluation will only be performed for parameters that have health/risk based standards associated with them as listed in EPA's publication "RCRA Facility Investigation Guidance", interim final (EPA 530/SW-89-31), dated May, 1989.

Table 3 summarizes the health/risk based standards for the parameters of concern, according to which the concrete chip samples will be evaluated. Evaluation will consist of comparing identified constituent levels to available background data and to health/risk based standards. Decontamination efforts will be deemed incomplete if

TABLE 3
HEALTH/RISK - BASED STANDARDS
CONCRETE CHIP SAMPLING

<u>CONSTITUENT</u>	<u>CONCENTRATION (mg/kg)</u>
Arsenic	0.02
Barium	900
Cadmium	*
Chromium (VI)	90
Copper	*
Lead	*
Mercury	*
Nickel	300
Selenium	*
Silver	50
Carbon Tetrachloride	5.4
1,1-Dichloroethylene	12
Methylene Chloride	93
Tetrachloroethylene	140
1,1,1-Trichloroethane	7000
Trichloroethylene	64

Risk levels obtained from RCRA Facility Investigation (RFI) Guidance Document (EPA Publication 530/SW-89-031).

*No risk levels identified

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constituent levels exceed health/risk based standards with the exception of samples that demonstrate such levels but are consistent with ambient background levels. Decontamination efforts must continue until followup sampling demonstrates that parameters are at or below health/risk based standards or are consistent with background levels. Any concrete chip sampling areas which exhibit levels consistent with background and either above or below health/risk based levels will be considered representative of ambient background levels thus decontamination efforts will be deemed complete.

D. CLOSURE COST ESTIMATE

The closure cost estimate for the wax/solvent storage area is estimated to be \$81,000 in 1990 dollars. A breakdown of the costs is included in Table 4. All costs assume performance of closure activity by a qualified third-party contractor. The estimates assume that no appreciable waste will be present in the tank at closure.

TABLE 4
CLOSURE COST ESTIMATE

<u>ACTIVITY</u>	<u>COST</u>
1. Health & Safety Plan	\$ 3,000
2. Removal of Hazardous Waste Inventory	\$ 5,000
3. Dismantling and Disposal of Tank and Ancillary Equipment	\$20,000
4. Decontamination of Containment Pit	\$20,000
5. Verification Sampling and Analysis	\$16,000
6. Data Evaluation and Closure Certification	\$ 5,000
Subtotal	\$69,000
Insurance (7%)	\$ 5,000
Contingency (10%)	<u>\$ 7,000</u>
TOTAL	\$81,000

SECTION I - OTHER FEDERAL LAWS

At this time, we believe that this facility is in compliance with the following Federal Laws:

- The Wild and Scenic Rivers Act
- The Endangered Species Act
- The National Historic Preservation Act of 1966
- The Coastal Zone Management Act
- The Fish and Wildlife Coordination Act.

Information will be provided in accordance with the requirements of 40 CFR Part 270.14(b) at the request of EPA Region I.

SECTION J - CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE: Ronald H. Herrin

DATE: 12/13/90

TITLE: Vice President, Environment,
Health & Safety